

RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/121,713CL *#4*DATE: 12/17/93  
TIME: 19:23:18

INPUT SET: S7086.raw

## SEQUENCE LISTING

## (1) General Information:

(i) APPLICANT: Goodman, Corey S.  
Kolodkin, Alex L.  
matthes, David  
Bentley, David R.  
O'Connor, Timothy

(ii) TITLE OF INVENTION: The Semaphorin Gene Family

(iii) NUMBER OF SEQUENCES: 50 *766 are shown*

(iv) CORRESPONDENCE ADDRESS:

(A) ADDRESSEE: FLEHR HOHBACH TEST ALBRITTON & HERBERT  
(B) STREET: 4 Embarcadero Center, Suite 3400  
(C) CITY: San Francisco  
(D) STATE: CA  
(E) COUNTRY: USA  
(F) ZIP: 94111-4187

(v) COMPUTER READABLE FORM:

(A) MEDIUM TYPE: Floppy disk  
(B) COMPUTER: IBM PC compatible  
(C) OPERATING SYSTEM: PC-DOS/MS-DOS  
(D) SOFTWARE: PatentIn Release #1.0, Version #1.25

(vi) CURRENT APPLICATION DATA:

(A) APPLICATION NUMBER: US 08/121,713  
(B) FILING DATE: 13-SEP-1993  
(C) CLASSIFICATION:

(viii) ATTORNEY/AGENT INFORMATION:

(A) NAME: Osman, Richard A.  
(B) REGISTRATION NUMBER: 36,627  
(C) REFERENCE/DOCKET NUMBER: A-58750/RAO

(ix) TELECOMMUNICATION INFORMATION:

(A) TELEPHONE: (415) 781-1989  
(B) TELEFAX: (415) 398-3249  
(C) TELEX: 910 277299 FHT UR

(2) INFORMATION FOR SEQ ID NO:1:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 6 amino acids  
(B) TYPE: amino acid  
(C) STRANDEDNESS: single  
(D) TOPOLOGY: linear

NOTE TO APPLICANT:

For all of your nucleic sequences, the nucleic number at the end of each line "wrapped" down to the next line. This occurred if your file was used in a word processor after creating it in PatentIn. Your word processor probably has different margin settings than those used in PatentIn. A right margin set at least to .3 will prevent wrapping.

*Please read:*

*(see p. 26)*

RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/121,713DATE: 12/17/93  
TIME: 19:23:25

INPUT SET: S7086.raw

52  
53 (ii) MOLECULE TYPE: peptide  
54  
55  
56 (ix) FEATURE:  
57 (A) NAME/KEY: Peptide  
58 (B) LOCATION: 1..6  
59 (D) OTHER INFORMATION: /label= SEQ01  
60 /note= "Xaa denotes D or E at residue #1; Q,K,R,A  
61 or N at residue #3; and Y,F or V at residue #5"  
62  
63  
64 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:  
65  
66 Xaa Cys Xaa Asn Xaa Ile  
67 1 5  
68  
69 (2) INFORMATION FOR SEQ ID NO:2:  
70  
71 (i) SEQUENCE CHARACTERISTICS:  
72 (A) LENGTH: 6 amino acids  
73 (B) TYPE: amino acid  
74 (C) STRANDEDNESS: single  
75 (D) TOPOLOGY: linear  
76  
77 (ii) MOLECULE TYPE: peptide  
78  
79  
80 (ix) FEATURE:  
81 (A) NAME/KEY: Peptide  
82 (B) LOCATION: 1..6  
83 (D) OTHER INFORMATION: /label= SEQ02  
84 /note= "Xaa denotes Q,K,R,A or N at residue #2;  
85 Y,F or V at residue #4; and R,K,Q or T at residue  
86 #6"  
87  
88  
89 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:  
90  
91 Cys Xaa Asn Xaa Ile Xaa  
92 1 5  
93  
94 (2) INFORMATION FOR SEQ ID NO:3:  
95  
96 (i) SEQUENCE CHARACTERISTICS:  
97 (A) LENGTH: 7 amino acids  
98 (B) TYPE: amino acid  
99 (C) STRANDEDNESS: single  
100 (D) TOPOLOGY: linear  
101  
102 (ii) MOLECULE TYPE: peptide

RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/121,713DATE: 12/17/93  
TIME: 19:23:32

INPUT SET: S7086.raw

103  
104  
105 (ix) FEATURE:  
106 (A) NAME/KEY: Peptide  
107 (B) LOCATION: 1..7  
108 (D) OTHER INFORMATION: /label= SEQ03  
109 /note= "Xaa denotes N or G at residue #4; A,S or N  
110 at residue #5; Y,F,H or G at residue #6; and  
111 K,R,H,N or Q at residue #7"  
112  
113  
114 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:  
115  
116 Cys Gly Thr Xaa Xaa Xaa Xaa  
117 1 5  
118  
119 (2) INFORMATION FOR SEQ ID NO:4:  
120  
121 (i) SEQUENCE CHARACTERISTICS:  
122 (A) LENGTH: 8 amino acids  
123 (B) TYPE: amino acid  
124 (C) STRANDEDNESS: single  
125 (D) TOPOLOGY: linear  
126  
127 (ii) MOLECULE TYPE: peptide  
128  
129  
130 (ix) FEATURE:  
131 (A) NAME/KEY: Peptide  
132 (B) LOCATION: 1..8  
133 (D) OTHER INFORMATION: /label= SEQ04  
134 /note= "Xaa denotes N or G at residue #4; and A,S  
135 or N at residue #5"  
136  
137  
138 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:  
139  
140 Cys Gly Thr Xaa Xaa Xaa Xaa Pro  
141 1 5  
142  
143 (2) INFORMATION FOR SEQ ID NO:5:  
144  
145 (i) SEQUENCE CHARACTERISTICS:  
146 (A) LENGTH: 10 amino acids  
147 (B) TYPE: amino acid  
148 (C) STRANDEDNESS: single  
149 (D) TOPOLOGY: linear  
150  
151 (ii) MOLECULE TYPE: peptide  
152  
153

RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/121,713DATE: 12/17/93  
TIME: 19:23:38

INPUT SET: S7086.raw

154 (ix) FEATURE:  
155 (A) NAME/KEY: Peptide  
156 (B) LOCATION: 1..10  
157 (D) OTHER INFORMATION: /label= SEQ05  
158 /note= "Xaa denotes N or G at residue #4; and C or  
159 D at residue #10"  
160  
161  
162 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:  
163  
164 Cys Gly Thr Xaa Xaa Xaa Xaa Pro Xaa Xaa  
165 1 5 10  
166  
167 (2) INFORMATION FOR SEQ ID NO:6:  
168  
169 (i) SEQUENCE CHARACTERISTICS:  
170 (A) LENGTH: 13 amino acids  
171 (B) TYPE: amino acid  
172 (C) STRANDEDNESS: single  
173 (D) TOPOLOGY: linear  
174  
175 (ii) MOLECULE TYPE: peptide  
176  
177  
178 (ix) FEATURE:  
179 (A) NAME/KEY: Peptide  
180 (B) LOCATION: 1..13  
181 (D) OTHER INFORMATION: /label= SEQ06  
182 /note= "Xaa denotes C or D at residue #10; and Y  
183 or I at residue #13"  
184  
185  
186 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:  
187  
188 Cys Gly Thr Xaa Xaa Xaa Xaa Pro Xaa Xaa Xaa Xaa Xaa  
189 1 5 10  
190  
191 (2) INFORMATION FOR SEQ ID NO:7:  
192  
193 (i) SEQUENCE CHARACTERISTICS:  
194 (A) LENGTH: 7 amino acids  
195 (B) TYPE: amino acid  
196 (C) STRANDEDNESS: single  
197 (D) TOPOLOGY: linear  
198  
199 (ii) MOLECULE TYPE: peptide  
200  
201  
202 (ix) FEATURE:  
203 (A) NAME/KEY: Peptide  
204 (B) LOCATION: 1..7

RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/121,713DATE: 12/17/93  
TIME: 19:23:44

INPUT SET: S7086.raw

205 (D) OTHER INFORMATION: /label= SEQ07  
206 /note= "Xaa denotes R,I,Q or V at residue #1; G or  
207 A at residue #2; L,V or K at residue #3; C or S at  
208 residue #4; F or Y at residue #6; and D or N at  
209 residue #7"  
210  
211  
212 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:  
213  
214 Xaa Xaa Xaa Xaa Pro Xaa Xaa  
215 1 5  
216  
217 (2) INFORMATION FOR SEQ ID NO:8:  
218  
219 (i) SEQUENCE CHARACTERISTICS:  
220 (A) LENGTH: 7 amino acids  
221 (B) TYPE: amino acid  
222 (C) STRANDEDNESS: single  
223 (D) TOPOLOGY: linear  
224  
225 (ii) MOLECULE TYPE: peptide  
226  
227  
228 (ix) FEATURE:  
229 (A) NAME/KEY: Peptide  
230 (B) LOCATION: 1..7  
231 (D) OTHER INFORMATION: /label= SEQ08  
232 /note= "Xaa denotes C or S at residue #1; F or Y  
233 at residue #3; D or N at residue #4; D,E,R or K at  
234 residue #6; and H,L or D at residue #7"  
235  
236  
237 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:  
238  
239 Xaa Pro Xaa Xaa Pro Xaa Xaa  
240 1 5  
241  
242 (2) INFORMATION FOR SEQ ID NO:9:  
243  
244 (i) SEQUENCE CHARACTERISTICS:  
245 (A) LENGTH: 9 amino acids  
246 (B) TYPE: amino acid  
247 (C) STRANDEDNESS: single  
248 (D) TOPOLOGY: linear  
249  
250 (ii) MOLECULE TYPE: peptide  
251  
252  
253 (ix) FEATURE:  
254 (A) NAME/KEY: Peptide  
255 (B) LOCATION: 1..9

RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/121,713DATE: 12/17/93  
TIME: 19:23:51

INPUT SET: S7086.raw

256 (D) OTHER INFORMATION: /label= SEQ09  
257 /note= "Xaa denotes G or A at residue #3; C or S  
258 at residue #5; and D or N at residue #8"  
259  
260  
261 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:  
262  
263 Gly Xaa Xaa Xaa Xaa Pro Tyr Xaa Pro  
264 1 5  
265  
266 (2) INFORMATION FOR SEQ ID NO:10:  
267  
268 (i) SEQUENCE CHARACTERISTICS:  
269 (A) LENGTH: 7 amino acids  
270 (B) TYPE: amino acid  
271 (C) STRANDEDNESS: single  
272 (D) TOPOLOGY: linear  
273  
274 (ii) MOLECULE TYPE: peptide  
275  
276  
277 (ix) FEATURE:  
278 (A) NAME/KEY: Peptide  
279 (B) LOCATION: 1..7  
280 (D) OTHER INFORMATION: /label= SEQ10  
281 /note= "Xaa denotes F or Y at residue #2; G or A  
282 at residue #4; and V,N or A at residue #6"  
283  
284  
285 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:  
286  
287 Leu Xaa Ser Xaa Thr Xaa Ala  
288 1 5  
289  
290 (2) INFORMATION FOR SEQ ID NO:11:  
291  
292 (i) SEQUENCE CHARACTERISTICS:  
293 (A) LENGTH: 9 amino acids  
294 (B) TYPE: amino acid  
295 (C) STRANDEDNESS: single  
296 (D) TOPOLOGY: linear  
297  
298 (ii) MOLECULE TYPE: peptide  
299  
300  
301 (ix) FEATURE:  
302 (A) NAME/KEY: Peptide  
303 (B) LOCATION: 1..9  
304 (D) OTHER INFORMATION: /label= SEQ11  
305 /note= "Xaa denotes F or Y at residue #2; D or E  
306 at residue #8; and F or Y at residue #9"

RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/121,713DATE: 12/17/93  
TIME: 19:23:57

INPUT SET: S7086.raw

307  
308  
309 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:  
310  
311 Leu Xaa Ser Xaa Thr Xaa Ala Xaa Xaa  
312 1 5  
313  
314 (2) INFORMATION FOR SEQ ID NO:12:  
315  
316 (i) SEQUENCE CHARACTERISTICS:  
317 (A) LENGTH: 8 amino acids  
318 (B) TYPE: amino acid  
319 (C) STRANDEDNESS: single  
320 (D) TOPOLOGY: linear  
321  
322 (ii) MOLECULE TYPE: peptide  
323  
324  
325 (ix) FEATURE:  
326 (A) NAME/KEY: Peptide  
327 (B) LOCATION: 1..8  
328 (D) OTHER INFORMATION: /label= SEQ12  
329 /note= "Xaa denotes F or Y at residue #1; G or A  
330 at residue #3; V,N or A at residue #5; D or E at  
331 residue #7; and F or Y at residue #8"  
332  
333  
334 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:  
335  
336 Xaa Ser Xaa Thr Xaa Ala Xaa Xaa  
337 1 5  
338  
339 (2) INFORMATION FOR SEQ ID NO:13:  
340  
341 (i) SEQUENCE CHARACTERISTICS:  
342 (A) LENGTH: 7 amino acids  
343 (B) TYPE: amino acid  
344 (C) STRANDEDNESS: single  
345 (D) TOPOLOGY: linear  
346  
347 (ii) MOLECULE TYPE: peptide  
348  
349  
350 (ix) FEATURE:  
351 (A) NAME/KEY: Peptide  
352 (B) LOCATION: 1..7  
353 (D) OTHER INFORMATION: /label= SEQ13  
354 /note= "Xaa denotes N or D at residue #2; and A or  
355 K at residue #3"  
356  
357

RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/121,713DATE: 12/17/93  
TIME: 19:24:03

INPUT SET: S7086.raw

358 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:  
359  
360 Leu Xaa Xaa Pro Asn Phe Val  
361 1 5  
362

363 (2) INFORMATION FOR SEQ ID NO:14:  
364  
365 (i) SEQUENCE CHARACTERISTICS:  
366 (A) LENGTH: 5 amino acids  
367 (B) TYPE: amino acid  
368 (C) STRANDEDNESS: single  
369 (D) TOPOLOGY: linear  
370  
371 (ii) MOLECULE TYPE: peptide  
372  
373  
374

375 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:  
376  
377 Phe Phe Phe Arg Glu  
378 1 5  
379

380 (2) INFORMATION FOR SEQ ID NO:15:  
381  
382 (i) SEQUENCE CHARACTERISTICS:  
383 (A) LENGTH: 6 amino acids  
384 (B) TYPE: amino acid  
385 (C) STRANDEDNESS: single  
386 (D) TOPOLOGY: linear  
387  
388 (ii) MOLECULE TYPE: peptide  
389  
390

391 (ix) FEATURE:  
392 (A) NAME/KEY: Peptide  
393 (B) LOCATION: 1..6  
394 (D) OTHER INFORMATION: /label= SEQ15  
395 /note= "Xaa denotes F or Y at residue #3; and T or  
396 N at residue #6"  
397  
398

399 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:  
400  
401 Phe Phe Xaa Arg Glu Xaa  
402 1 5  
403

404 (2) INFORMATION FOR SEQ ID NO:16:  
405  
406 (i) SEQUENCE CHARACTERISTICS:  
407 (A) LENGTH: 6 amino acids  
408 (B) TYPE: amino acid



RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/121,713DATE: 12/17/93  
TIME: 19:24:09

INPUT SET: S7086.raw

409 (C) STRANDEDNESS: single  
410 (D) TOPOLOGY: linear  
411  
412 (ii) MOLECULE TYPE: peptide  
413  
414  
415 (ix) FEATURE:  
416 (A) NAME/KEY: Peptide  
417 (B) LOCATION: 1..6  
418 (D) OTHER INFORMATION: /label= SEQ16  
419 /note= "Xaa denotes T or N at residue #5"  
420  
421  
422 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:16:  
423  
424 Phe Phe Arg Glu Xaa Ala  
425 1 5  
426  
427 (2) INFORMATION FOR SEQ ID NO:17:  
428  
429 (i) SEQUENCE CHARACTERISTICS:  
430 (A) LENGTH: 6 amino acids  
431 (B) TYPE: amino acid  
432 (C) STRANDEDNESS: single  
433 (D) TOPOLOGY: linear  
434  
435 (ii) MOLECULE TYPE: peptide  
436  
437  
438 (ix) FEATURE:  
439 (A) NAME/KEY: Peptide  
440 (B) LOCATION: 1..6  
441 (D) OTHER INFORMATION: /label= SEQ17  
442 /note= "Xaa denotes F or Y at residue #2; and T or  
443 N at residue #5"  
444  
445  
446 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:  
447  
448 Phe Xaa Arg Glu Xaa Ala  
449 1 5  
450  
451 (2) INFORMATION FOR SEQ ID NO:18:  
452  
453 (i) SEQUENCE CHARACTERISTICS:  
454 (A) LENGTH: 6 amino acids  
455 (B) TYPE: amino acid  
456 (C) STRANDEDNESS: single  
457 (D) TOPOLOGY: linear  
458  
459 (ii) MOLECULE TYPE: peptide

RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/121,713DATE: 12/17/93  
TIME: 19:24:16

INPUT SET: S7086.raw

460  
461  
462 (ix) FEATURE:  
463 (A) NAME/KEY: Peptide  
464 (B) LOCATION: 1..6  
465 (D) OTHER INFORMATION: /label= SEQ18  
466 /note= "Xaa denotes F or Y at residue #4"  
467  
468  
469 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:18:  
470 Tyr Phe Phe Xaa Arg Glu  
471 1 5  
472  
473  
474 (2) INFORMATION FOR SEQ ID NO:19:  
475  
476 (i) SEQUENCE CHARACTERISTICS:  
477 (A) LENGTH: 6 amino acids  
478 (B) TYPE: amino acid  
479 (C) STRANDEDNESS: single  
480 (D) TOPOLOGY: linear  
481  
482 (ii) MOLECULE TYPE: peptide  
483  
484  
485 (ix) FEATURE:  
486 (A) NAME/KEY: Peptide  
487 (B) LOCATION: 1..6  
488 (D) OTHER INFORMATION: /label= SEQ19  
489 /note= "Xaa denotes F or Y at residue #1; and F or  
490 Y at residue #4"  
491  
492  
493 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:19:  
494  
495 Xaa Phe Phe Xaa Arg Glu  
496 1 5  
497  
498 (2) INFORMATION FOR SEQ ID NO:20:  
499  
500 (i) SEQUENCE CHARACTERISTICS:  
501 (A) LENGTH: 7 amino acids  
502 (B) TYPE: amino acid  
503 (C) STRANDEDNESS: single  
504 (D) TOPOLOGY: linear  
505  
506 (ii) MOLECULE TYPE: peptide  
507  
508  
509 (ix) FEATURE:  
510 (A) NAME/KEY: Peptide

RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/121,713DATE: 12/17/93  
TIME: 19:24:22

INPUT SET: S7086.raw

511 (B) LOCATION: 1..7  
512 (D) OTHER INFORMATION: /label= SEQ20  
513 /note= "Xaa denotes F or Y at residue #1; F or Y  
514 at residue #2; F or Y at residue #3; and T or N at  
515 residue #6"  
516  
517  
518 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:20:  
519  
520 Xaa Xaa Xaa Arg Glu Xaa Ala  
521 1 5  
522  
523 (2) INFORMATION FOR SEQ ID NO:21:  
524  
525 (i) SEQUENCE CHARACTERISTICS:  
526 (A) LENGTH: 7 amino acids  
527 (B) TYPE: amino acid  
528 (C) STRANDEDNESS: single  
529 (D) TOPOLOGY: linear  
530  
531 (ii) MOLECULE TYPE: peptide  
532  
533  
534 (ix) FEATURE:  
535 (A) NAME/KEY: Peptide  
536 (B) LOCATION: 1..7  
537 (D) OTHER INFORMATION: /label= SEQ21  
538 /note= "Xaa denotes I or V at residue #1; F or Y  
539 at residue #2; F or Y at residue #4; and F or Y at  
540 residue #5"  
541  
542  
543 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:21:  
544  
545 Xaa Xaa Phe Xaa Xaa Arg Glu  
546 1 5  
547  
548 (2) INFORMATION FOR SEQ ID NO:22:  
549  
550 (i) SEQUENCE CHARACTERISTICS:  
551 (A) LENGTH: 7 amino acids  
552 (B) TYPE: amino acid  
553 (C) STRANDEDNESS: single  
554 (D) TOPOLOGY: linear  
555  
556 (ii) MOLECULE TYPE: peptide  
557  
558  
559 (ix) FEATURE:  
560 (A) NAME/KEY: Peptide  
561 (B) LOCATION: 1..7

RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/121,713DATE: 12/17/93  
TIME: 19:24:28

INPUT SET: S7086.raw

562 (D) OTHER INFORMATION: /label= SEQ22  
563 /note= "Xaa denotes K,F or Y at residue #2; F or Y  
564 at residue #4; F,Y,I or L at residue #5; F,Y,I or  
565 L at residue #6; and F or Y at residue #7"  
566  
567  
568 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:22:  
569  
570 Asp Xaa Val Xaa Xaa Xaa Xaa  
571 1 5  
572  
573 (2) INFORMATION FOR SEQ ID NO:23:  
574  
575 (i) SEQUENCE CHARACTERISTICS:  
576 (A) LENGTH: 8 amino acids  
577 (B) TYPE: amino acid  
578 (C) STRANDEDNESS: single  
579 (D) TOPOLOGY: linear  
580  
581 (ii) MOLECULE TYPE: peptide  
582  
583  
584 (ix) FEATURE:  
585 (A) NAME/KEY: Peptide  
586 (B) LOCATION: 1..8  
587 (D) OTHER INFORMATION: /label= SEQ23  
588 /note= "Xaa denotes V or I at residue #1; F or Y  
589 at residue #2; F,Y,I or L at residue #3; F,Y,I or  
590 L at residue #4; R or T at residue #6; and T or N  
591 at residue #8"  
592  
593  
594 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:23:  
595  
596 Xaa Xaa Xaa Xaa Phe Xaa Xaa Xaa  
597 1 5  
598  
599 (2) INFORMATION FOR SEQ ID NO:24:  
600  
601 (i) SEQUENCE CHARACTERISTICS:  
602 (A) LENGTH: 8 amino acids  
603 (B) TYPE: amino acid  
604 (C) STRANDEDNESS: single  
605 (D) TOPOLOGY: linear  
606  
607 (ii) MOLECULE TYPE: peptide  
608  
609  
610 (ix) FEATURE:  
611 (A) NAME/KEY: Peptide  
612 (B) LOCATION: 1..8

RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/121,713DATE: 12/17/93  
TIME: 19:24:35

INPUT SET: S7086.raw

613 (D) OTHER INFORMATION: /label= SEQ24  
614 /note= "Xaa denotes V or I at residue #1; F or Y  
615 at residue #2; F,Y,I or L at residue #3; F,Y,I or  
616 L at residue #4; F or Y at residue #5; R or T at  
617 residue #6; E,D or V at residue #7; and T or N at  
618 residue #8"  
619  
620  
621 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:24:  
622  
623 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa  
624 1 5  
625  
626 (2) INFORMATION FOR SEQ ID NO:25:  
627  
628 (i) SEQUENCE CHARACTERISTICS:  
629 (A) LENGTH: 7 amino acids  
630 (B) TYPE: amino acid  
631 (C) STRANDEDNESS: single  
632 (D) TOPOLOGY: linear  
633  
634 (ii) MOLECULE TYPE: peptide  
635  
636  
637 (ix) FEATURE:  
638 (A) NAME/KEY: Peptide  
639 (B) LOCATION: 1..7  
640 (D) OTHER INFORMATION: /label= SEQ25  
641 /note= "Xaa denotes F or Y at residue #2; and C or  
642 S at residue #5"  
643  
644  
645 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:25:  
646  
647 Glu Xaa Ile Asn Xaa Gly Lys  
648 1 5  
649  
650 (2) INFORMATION FOR SEQ ID NO:26:  
651  
652 (i) SEQUENCE CHARACTERISTICS:  
653 (A) LENGTH: 7 amino acids  
654 (B) TYPE: amino acid  
655 (C) STRANDEDNESS: single  
656 (D) TOPOLOGY: linear  
657  
658 (ii) MOLECULE TYPE: peptide  
659  
660  
661 (ix) FEATURE:  
662 (A) NAME/KEY: Peptide  
663 (B) LOCATION: 1..7

RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/121,713DATE: 12/17/93  
TIME: 19:24:41

INPUT SET: S7086.raw

664 (D) OTHER INFORMATION: /label= SEQ26  
665 /note= "Xaa denotes F or Y at residue #1; and A,V  
666 or I at residue #7"  
667  
668  
669 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:26:  
670  
671 Xaa Ile Asn Cys Gly Lys Xaa  
672 1 5  
673  
674 (2) INFORMATION FOR SEQ ID NO:27:  
675  
676 (i) SEQUENCE CHARACTERISTICS:  
677 (A) LENGTH: 7 amino acids  
678 (B) TYPE: amino acid  
679 (C) STRANDEDNESS: single  
680 (D) TOPOLOGY: linear  
681  
682 (ii) MOLECULE TYPE: peptide  
683  
684  
685 (ix) FEATURE:  
686 (A) NAME/KEY: Peptide  
687 (B) LOCATION: 1..7  
688 (D) OTHER INFORMATION: /label= SEQ27  
689 /note= "Xaa denotes V or I at residue #2; A or G  
690 at residue #3; R or Q at residue #4; and V or I at  
691 residue #5"  
692  
693  
694 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:27:  
695  
696 Arg Xaa Xaa Xaa Xaa Cys Lys  
697 1 5  
698  
699 (2) INFORMATION FOR SEQ ID NO:28:  
700  
701 (i) SEQUENCE CHARACTERISTICS:  
702 (A) LENGTH: 9 amino acids  
703 (B) TYPE: amino acid  
704 (C) STRANDEDNESS: single  
705 (D) TOPOLOGY: linear  
706  
707 (ii) MOLECULE TYPE: peptide  
708  
709  
710 (ix) FEATURE:  
711 (A) NAME/KEY: Peptide  
712 (B) LOCATION: 1..9  
713 (D) OTHER INFORMATION: /label= SEQ28  
714 /note= "Xaa denotes V or I at residue #2; R or Q

RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/121,713DATE: 12/17/93  
TIME: 19:24:48

INPUT SET: S7086.raw

715 at residue #4; and V or I at residue #5"  
716  
717  
718 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:28:  
719  
720 Arg Xaa Xaa Xaa Xaa Cys Xaa Xaa Asp  
721 1 5  
722  
723 (2) INFORMATION FOR SEQ ID NO:29:  
724  
725 (i) SEQUENCE CHARACTERISTICS:  
726 (A) LENGTH: 13 amino acids  
727 (B) TYPE: amino acid  
728 (C) STRANDEDNESS: single  
729 (D) TOPOLOGY: linear  
730  
731 (ii) MOLECULE TYPE: peptide  
732  
733  
734 (ix) FEATURE:  
735 (A) NAME/KEY: Peptide  
736 (B) LOCATION: 1..13  
737 (D) OTHER INFORMATION: /label= SEQ29  
738 /note= "Xaa denotes V,A or I at residue #3; and  
739 V,A or I at residue #8"  
740  
741  
742 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:29:  
743  
744 Gly Lys Xaa Xaa Xaa Xaa Arg Xaa Xaa Xaa Xaa Cys Lys  
745 1 5 10  
746  
747 (2) INFORMATION FOR SEQ ID NO:30:  
748  
749 (i) SEQUENCE CHARACTERISTICS:  
750 (A) LENGTH: 7 amino acids  
751 (B) TYPE: amino acid  
752 (C) STRANDEDNESS: single  
753 (D) TOPOLOGY: linear  
754  
755 (ii) MOLECULE TYPE: peptide  
756  
757  
758 (ix) FEATURE:  
759 (A) NAME/KEY: Peptide  
760 (B) LOCATION: 1..7  
761 (D) OTHER INFORMATION: /label= SEQ30  
762 /note= "Xaa denotes R,K or N at residue #1; T,A or  
763 S at residue #3; T,A or S at residue #4; F,Y or L  
764 at residue #5; and K or R at residue #7"  
765

RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/121,713DATE: 12/17/93  
TIME: 19:24:54

INPUT SET: S7086.raw

766  
767 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:30:  
768  
769 Xaa Trp Xaa Xaa Xaa Leu Xaa  
770 1 5  
771  
772 (2) INFORMATION FOR SEQ ID NO:31:  
773  
774 (i) SEQUENCE CHARACTERISTICS:  
775 (A) LENGTH: 8 amino acids  
776 (B) TYPE: amino acid  
777 (C) STRANDEDNESS: single  
778 (D) TOPOLOGY: linear  
779  
780 (ii) MOLECULE TYPE: peptide  
781  
782  
783 (ix) FEATURE:  
784 (A) NAME/KEY: Peptide  
785 (B) LOCATION: 1..8  
786 (D) OTHER INFORMATION: /label= SEQ31  
787 /note= "Xaa denotes F or Y at residue #1; K or R  
788 at residue #3; A or S at residue #4; and N or I at  
789 residue #7"  
790  
791  
792 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:31:  
793  
794 Xaa Leu Xaa Xaa Arg Leu Xaa Cys  
795 1 5  
796  
797 (2) INFORMATION FOR SEQ ID NO:32:  
798  
799 (i) SEQUENCE CHARACTERISTICS:  
800 (A) LENGTH: 6 amino acids  
801 (B) TYPE: amino acid  
802 (C) STRANDEDNESS: single  
803 (D) TOPOLOGY: linear  
804  
805 (ii) MOLECULE TYPE: peptide  
806  
807  
808 (ix) FEATURE:  
809 (A) NAME/KEY: Peptide  
810 (B) LOCATION: 1..6  
811 (D) OTHER INFORMATION: /label= SEQ32  
812 /note= "Xaa denotes N or I at residue #1; I or V  
813 at residue #4; and P or S at residue #5"  
814  
815  
816 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:32:



RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/121,713DATE: 12/17/93  
TIME: 19:25:00

INPUT SET: S7086.raw

817  
818 Xaa Cys Ser Xaa Xaa Gly  
819 1 5  
820  
821 (2) INFORMATION FOR SEQ ID NO:33:  
822  
823 (i) SEQUENCE CHARACTERISTICS:  
824 (A) LENGTH: 9 amino acids  
825 (B) TYPE: amino acid  
826 (C) STRANDEDNESS: single  
827 (D) TOPOLOGY: linear  
828  
829 (ii) MOLECULE TYPE: peptide  
830  
831  
832 (ix) FEATURE:  
833 (A) NAME/KEY: Peptide  
834 (B) LOCATION: 1..9  
835 (D) OTHER INFORMATION: /label= SEQ33  
836 /note= "Xaa denotes T,A or S at residue #2; T,A or  
837 S at residue #3; F,Y or L at residue #4; and  
838 A,S,V,I or L at residue #7"  
839  
840  
841 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:33:  
842  
843 Trp Xaa Xaa Xaa Leu Lys Xaa Xaa Leu  
844 1 5  
845  
846 (2) INFORMATION FOR SEQ ID NO:34:  
847  
848 (i) SEQUENCE CHARACTERISTICS:  
849 (A) LENGTH: 11 amino acids  
850 (B) TYPE: amino acid  
851 (C) STRANDEDNESS: single  
852 (D) TOPOLOGY: linear  
853  
854 (ii) MOLECULE TYPE: peptide  
855  
856  
857 (ix) FEATURE:  
858 (A) NAME/KEY: Peptide  
859 (B) LOCATION: 1..11  
860 (D) OTHER INFORMATION: /label= SEQ34  
861 /note= "Xaa denotes T,A or S at residue #2; and  
862 T,A or S at residue #3"  
863  
864  
865 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:34:  
866  
867 Trp Xaa Xaa Xaa Leu Lys Xaa Xaa Leu Xaa Cys

RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/121,713DATE: 12/17/93  
TIME: 19:25:07

INPUT SET: S7086.raw

868 1 5 10  
869  
870 (2) INFORMATION FOR SEQ ID NO:35:  
871  
872 (i) SEQUENCE CHARACTERISTICS:  
873 (A) LENGTH: 11 amino acids  
874 (B) TYPE: amino acid  
875 (C) STRANDEDNESS: single  
876 (D) TOPOLOGY: linear  
877  
878 (ii) MOLECULE TYPE: peptide  
879  
880  
881 (ix) FEATURE:  
882 (A) NAME/KEY: Peptide  
883 (B) LOCATION: 1..11  
884 (D) OTHER INFORMATION: /label= SEQ35  
885 /note= "Xaa denotes T or S at residue #3"  
886  
887  
888 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:35:  
889  
890 Trp Xaa Xaa Xaa Leu Lys Xaa Xaa Leu Xaa Cys  
891 1 5 10  
892  
893 (2) INFORMATION FOR SEQ ID NO:36:  
894  
895 (i) SEQUENCE CHARACTERISTICS:  
896 (A) LENGTH: 7 amino acids  
897 (B) TYPE: amino acid  
898 (C) STRANDEDNESS: single  
899 (D) TOPOLOGY: linear  
900  
901 (ii) MOLECULE TYPE: peptide  
902  
903  
904 (ix) FEATURE:  
905 (A) NAME/KEY: Peptide  
906 (B) LOCATION: 1..7  
907 (D) OTHER INFORMATION: /label= SEQ36  
908 /note= "Xaa denotes F or Y at residue #1; F or Y  
909 at residue #2; and N or D at residue #3"  
910  
911  
912 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:36:  
913  
914 Xaa Xaa Xaa Glu Ile Gln Ser  
915 1 5  
916  
917 (2) INFORMATION FOR SEQ ID NO:37:  
918

RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/121,713DATE: 12/17/93  
TIME: 19:25:13

INPUT SET: S7086.raw

919 (i) SEQUENCE CHARACTERISTICS:  
920 (A) LENGTH: 7 amino acids  
921 (B) TYPE: amino acid  
922 (C) STRANDEDNESS: single  
923 (D) TOPOLOGY: linear  
924  
925 (ii) MOLECULE TYPE: peptide  
926  
927  
928 (ix) FEATURE:  
929 (A) NAME/KEY: Peptide  
930 (B) LOCATION: 1..7  
931 (D) OTHER INFORMATION: /label= SEQ37  
932 /note= "Xaa denotes F or Y at residue #1; F or Y  
933 at residue #3; F or Y at residue #4; F or Y at  
934 residue #5; and N or D at residue #6"  
935  
936  
937 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:37:  
938  
939 Xaa Pro Xaa Xaa Xaa Xaa Glu  
940 1 5  
941  
942 (2) INFORMATION FOR SEQ ID NO:38:  
943  
944 (i) SEQUENCE CHARACTERISTICS:  
945 (A) LENGTH: 7 amino acids  
946 (B) TYPE: amino acid  
947 (C) STRANDEDNESS: single  
948 (D) TOPOLOGY: linear  
949  
950 (ii) MOLECULE TYPE: peptide  
951  
952  
953 (ix) FEATURE:  
954 (A) NAME/KEY: Peptide  
955 (B) LOCATION: 1..7  
956 (D) OTHER INFORMATION: /label= SEQ38  
957 /note= "Xaa denotes V,I or L at residue #4; and F  
958 or Y at residue #7"  
959  
960 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:38:  
961  
962 Gly Ser Ala Xaa Cys Xaa Xaa  
963 1 5  
964  
965 (2) INFORMATION FOR SEQ ID NO:39:  
966  
967 (i) SEQUENCE CHARACTERISTICS:  
968 (A) LENGTH: 8 amino acids  
969 (B) TYPE: amino acid

RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/121,713DATE: 12/17/93  
TIME: 19:25:19

INPUT SET: S7086.raw

970 (C) STRANDEDNESS: single  
971 (D) TOPOLOGY: linear  
972  
973 (ii) MOLECULE TYPE: peptide  
974  
975  
976 (ix) FEATURE:  
977 (A) NAME/KEY: Peptide  
978 (B) LOCATION: 1..8  
979 (D) OTHER INFORMATION: /label= SEQ39  
980 /note= "Xaa denotes V,I or L at residue #3; and F  
981 or Y at residue #6"  
982  
983  
984 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:39:  
985  
986 Ser Ala Xaa Cys Xaa Xaa Xaa Met  
987 1 5  
988  
989 (2) INFORMATION FOR SEQ ID NO:40:  
990  
991 (i) SEQUENCE CHARACTERISTICS:  
992 (A) LENGTH: 7 amino acids  
993 (B) TYPE: amino acid  
994 (C) STRANDEDNESS: single  
995 (D) TOPOLOGY: linear  
996  
997 (ii) MOLECULE TYPE: peptide  
998  
999  
1000 (ix) FEATURE:  
1001 (A) NAME/KEY: Peptide  
1002 (B) LOCATION: 1..7  
1003 (D) OTHER INFORMATION: /label= SEQ40  
1004 /note= "Xaa denotes N or A at residue #3; and P or  
1005 A at residue #6"  
1006  
1007  
1008 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:40:  
1009  
1010 Asn Ser Xaa Trp Leu Xaa Val  
1011 1 5  
1012  
1013 (2) INFORMATION FOR SEQ ID NO:41:  
1014  
1015 (i) SEQUENCE CHARACTERISTICS:  
1016 (A) LENGTH: 7 amino acids  
1017 (B) TYPE: amino acid  
1018 (C) STRANDEDNESS: single  
1019 (D) TOPOLOGY: linear  
1020

RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/121,713DATE: 12/17/93  
TIME: 19:25:26

INPUT SET: S7086.raw

1021 (ii) MOLECULE TYPE: peptide  
1022  
1023  
1024 (ix) FEATURE:  
1025 (A) NAME/KEY: Peptide  
1026 (B) LOCATION: 1..7  
1027 (D) OTHER INFORMATION: /label= SEQ41  
1028 /note= "Xaa denotes V,L or I at residue #1; and  
1029 E,D,Y,S or F at residue #3"  
1030  
1031  
1032 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:41:  
1033  
1034 Xaa Pro Xaa Pro Arg Pro Gly  
1035 1 5  
1036  
1037 (2) INFORMATION FOR SEQ ID NO:42:  
1038  
1039 (i) SEQUENCE CHARACTERISTICS:  
1040 (A) LENGTH: 9 amino acids  
1041 (B) TYPE: amino acid  
1042 (C) STRANDEDNESS: single  
1043 (D) TOPOLOGY: linear  
1044  
1045 (ii) MOLECULE TYPE: peptide  
1046  
1047  
1048 (ix) FEATURE:  
1049 (A) NAME/KEY: Peptide  
1050 (B) LOCATION: 1..9  
1051 (D) OTHER INFORMATION: /label= SEQ42  
1052 /note= "Xaa denotes V,L or I at residue #1; and R  
1053 or A at residue #5"  
1054  
1055  
1056 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:42:  
1057  
1058 Xaa Pro Xaa Pro Xaa Pro Gly Xaa Cys  
1059 1 5  
1060  
1061 (2) INFORMATION FOR SEQ ID NO:43:  
1062  
1063 (i) SEQUENCE CHARACTERISTICS:  
1064 (A) LENGTH: 8 amino acids  
1065 (B) TYPE: amino acid  
1066 (C) STRANDEDNESS: single  
1067 (D) TOPOLOGY: linear  
1068  
1069 (ii) MOLECULE TYPE: peptide  
1070  
1071

RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/121,713DATE: 12/17/93  
TIME: 19:25:32

INPUT SET: S7086.raw

1072 (ix) FEATURE:  
1073 (A) NAME/KEY: Peptide  
1074 (B) LOCATION: 1..8  
1075 (D) OTHER INFORMATION: /label= SEQ43  
1076 /note= "Xaa denotes E,D,Y,S or F at residue #2;  
1077 and T,Q or S at residue #7"  
1078  
1079  
1080 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:43:  
1081  
1082 Pro Xaa Pro Arg Pro Gly Xaa Cys  
1083 1 5  
1084  
1085 (2) INFORMATION FOR SEQ ID NO:44:  
1086  
1087 (i) SEQUENCE CHARACTERISTICS:  
1088 (A) LENGTH: 6 amino acids  
1089 (B) TYPE: amino acid  
1090 (C) STRANDEDNESS: single  
1091 (D) TOPOLOGY: linear  
1092  
1093 (ii) MOLECULE TYPE: peptide  
1094  
1095  
1096 (ix) FEATURE:  
1097 (A) NAME/KEY: Peptide  
1098 (B) LOCATION: 1..6  
1099 (D) OTHER INFORMATION: /label= SEQ44  
1100 /note= "Xaa denotes H,F or Y at residue #3; and A  
1101 or G at residue #5"  
1102  
1103  
1104 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:44:  
1105  
1106 Asp Pro Xaa Cys Xaa Trp  
1107 1 5  
1108  
1109 (2) INFORMATION FOR SEQ ID NO:45:  
1110  
1111 (i) SEQUENCE CHARACTERISTICS:  
1112 (A) LENGTH: 6 amino acids  
1113 (B) TYPE: amino acid  
1114 (C) STRANDEDNESS: single  
1115 (D) TOPOLOGY: linear  
1116  
1117 (ii) MOLECULE TYPE: peptide  
1118  
1119  
1120 (ix) FEATURE:  
1121 (A) NAME/KEY: Peptide  
1122 (B) LOCATION: 1..6

RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/121,713DATE: 12/17/93  
TIME: 19:25:38

INPUT SET: S7086.raw

1123 (D) OTHER INFORMATION: /label= SEQ45  
1124 /note= "Xaa denotes H,F or Y at residue #2; and A  
1125 or G at residue #4"  
1126  
1127  
1128 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:45:  
1129  
1130 Pro Xaa Cys Xaa Trp Asp  
1131 1 5  
1132  
1133 (2) INFORMATION FOR SEQ ID NO:46:  
1134  
1135 (i) SEQUENCE CHARACTERISTICS:  
1136 (A) LENGTH: 7 amino acids  
1137 (B) TYPE: amino acid  
1138 (C) STRANDEDNESS: single  
1139 (D) TOPOLOGY: linear  
1140  
1141 (ii) MOLECULE TYPE: peptide  
1142  
1143  
1144 (ix) FEATURE:  
1145 (A) NAME/KEY: Peptide  
1146 (B) LOCATION: 1..7  
1147 (D) OTHER INFORMATION: /label= SEQ46  
1148 /note= "Xaa denotes A or G at residue #5"  
1149  
1150  
1151 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:46:  
1152  
1153 Asp Pro Xaa Cys Xaa Trp Asp  
1154 1 5  
1155  
1156 (2) INFORMATION FOR SEQ ID NO:47:  
1157  
1158 (i) SEQUENCE CHARACTERISTICS:  
1159 (A) LENGTH: 12 amino acids  
1160 (B) TYPE: amino acid  
1161 (C) STRANDEDNESS: single  
1162 (D) TOPOLOGY: linear  
1163  
1164 (ii) MOLECULE TYPE: peptide  
1165  
1166  
1167  
1168 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:47:  
1169  
1170 Cys Xaa Xaa Xaa Xaa Asp Pro Xaa Cys Xaa Trp Asp  
1171 1 5 10  
1172  
1173 (2) INFORMATION FOR SEQ ID NO:48:

RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/121,713DATE: 12/17/93  
TIME: 19:25:44

INPUT SET: S7086.raw

1174  
1175 (i) SEQUENCE CHARACTERISTICS:  
1176 (A) LENGTH: 11 amino acids  
1177 (B) TYPE: amino acid  
1178 (C) STRANDEDNESS: single  
1179 (D) TOPOLOGY: linear  
1180  
1181 (ii) MOLECULE TYPE: peptide  
1182  
1183  
1184  
1185 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:48:  
1186  
1187 Cys Xaa Xaa Xaa Asp Pro Xaa Cys Xaa Trp Asp  
1188 1 5 10  
1189  
1190 (2) INFORMATION FOR SEQ ID NO:49:  
1191  
1192 (i) SEQUENCE CHARACTERISTICS:  
1193 (A) LENGTH: 10 amino acids  
1194 (B) TYPE: amino acid  
1195 (C) STRANDEDNESS: single  
1196 (D) TOPOLOGY: linear  
1197  
1198 (ii) MOLECULE TYPE: peptide  
1199  
1200  
1201  
1202 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:49:  
1203  
1204 Cys Xaa Xaa Asp Pro Xaa Cys Xaa Trp Asp  
1205 1 5 10  
1206  
1207 (2) INFORMATION FOR SEQ ID NO:50:  
1208  
1209 (i) SEQUENCE CHARACTERISTICS:  
1210 (A) LENGTH: 15 amino acids  
1211 (B) TYPE: amino acid  
1212 (C) STRANDEDNESS: single  
1213 (D) TOPOLOGY: linear  
1214  
1215 (ii) MOLECULE TYPE: peptide  
1216  
1217  
1218  
1219 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:50:  
1220  
1221 Cys Xaa Xaa Cys Xaa Xaa Xaa Xaa Asp Xaa Xaa Cys Xaa Trp Asp  
1222 1 5 10 15  
1223  
1224 (2) INFORMATION FOR SEQ ID NO:51:



RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/121,713DATE: 12/17/93  
TIME: 19:25:51

INPUT SET: S7086.raw

1225  
1226 (i) SEQUENCE CHARACTERISTICS:  
1227 (A) LENGTH: 14 amino acids  
1228 (B) TYPE: amino acid  
1229 (C) STRANDEDNESS: single  
1230 (D) TOPOLOGY: linear  
1231  
1232 (ii) MOLECULE TYPE: peptide  
1233  
1234  
1235  
1236 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:51:  
1237  
1238 Cys Xaa Xaa Cys Xaa Xaa Xaa Asp Xaa Xaa Cys Xaa Trp Asp  
1239 1 5 10  
1240  
1241 (2) INFORMATION FOR SEQ ID NO:52:  
1242  
1243 (i) SEQUENCE CHARACTERISTICS:  
1244 (A) LENGTH: 13 amino acids  
1245 (B) TYPE: amino acid  
1246 (C) STRANDEDNESS: single  
1247 (D) TOPOLOGY: linear  
1248  
1249 (ii) MOLECULE TYPE: peptide  
1250  
1251  
1252  
1253 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:52:  
1254  
1255 Cys Xaa Xaa Cys Xaa Xaa Asp Xaa Xaa Cys Xaa Trp Asp  
1256 1 5 10  
1257  
1258  
1259 (2) INFORMATION FOR SEQ ID NO:53:  
1260  
1261 (i) SEQUENCE CHARACTERISTICS:  
--> 1262 (A) LENGTH: 2601 base pairs  
1263 (B) TYPE: nucleic acid  
1264 (C) STRANDEDNESS: double  
1265 (D) TOPOLOGY: linear  
1266  
1267 (ii) MOLECULE TYPE: cDNA  
1268  
1269  
1270 (ix) FEATURE:  
1271 (A) NAME/KEY: CDS  
1272 (B) LOCATION: 16..2331  
1273  
1274  
1275 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:53:

# RAW SEQUENCE LISTING PATENT APPLICATION US/08/121,713

DATE: 12/17/93  
TIME: 19:25:57

INPUT SET: S7086.raw

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1276
1277 GGAATTCCTT GCAGC ATG GGC TGG TTA ACT AGG ATT GTC TGT CTT TTC TGG
1278 51
1279 Met Gly Trp Leu Thr Arg Ile Val Cys Leu Phe Trp
1280 1 5 10
1281
1282 GGA GTA TTA CTT ACA GCA AGA GCA AAC TAT CAG AAT GGG AAG AAC AAT
1283 99
1284 Gly Val Leu Leu Thr Ala Arg Ala Asn Tyr Gln Asn Gly Lys Asn Asn
1285 15 20 25
1286
1287 GTG CCA AGG CTG AAA TTA TCC TAC AAA GAA ATG TTG GAA TCC AAC AAT
1288 147
1289 Val Pro Arg Leu Lys Leu Ser Tyr Lys Glu Met Leu Glu Ser Asn Asn
1290 30 35 40
1291
1292 GTG ATC ACT TTC AAT GGC TTG GCC AAC AGC TCC AGT TAT CAT ACC TTC
1293 195
1294 Val Ile Thr Phe Asn Gly Leu Ala Asn Ser Ser Ser Tyr His Thr Phe
1295 45 50 55 60
1296
1297 CTT TTG GAT GAG GAA CGG AGT AGG CTG TAT GTT GGA GCA AAG GAT CAC
1298 243
1299 Leu Leu Asp Glu Glu Arg Ser Arg Leu Tyr Val Gly Ala Lys Asp His
1300 65 70 75
1301
1302 ATA TTT TCA TTC GAC CTG GTT AAT ATC AAG GAT TTT CAA AAG ATT GTG
1303 291
1304 Ile Phe Ser Phe Asp Leu Val Asn Ile Lys Asp Phe Gln Lys Ile Val
1305 80 85 90
1306
1307 TGG CCA GTA TCT TAC ACC AGA AGA GAT GAA TGC AAG TGG GCT GGA AAA
1308 339
1309 Trp Pro Val Ser Tyr Thr Arg Arg Asp Glu Cys Lys Trp Ala Gly Lys
1310 95 100 105
1311
1312 GAC ATC CTG AAA GAA TGT GCT AAT TTC ATC AAG GTA CTT AAG GCA TAT
1313 387
1314 Asp Ile Leu Lys Glu Cys Ala Asn Phe Ile Lys Val Leu Lys Ala Tyr
1315 110 115 120
1316
1317 AAT CAG ACT CAC TTG TAC GCC TGT GGA ACG GGG GCT TTT CAT CCA ATT
1318 435
1319 Asn Gln Thr His Leu Tyr Ala Cys Gly Thr Gly Ala Phe His Pro Ile
1320 125 130 135 140
1321
1322 TGC ACC TAC ATT GAA ATT GGA CAT CAT CCT GAG GAC AAT ATT TTT AAG
1323 483
1324 Cys Thr Tyr Ile Glu Ile Gly His His Pro Glu Asp Asn Ile Phe Lys
1325 145 150 155
1326

```

**RAW SEQUENCE LISTING**  
**PATENT APPLICATION US/08/121,713**

DATE: 12/17/93  
TIME: 19:26:03

**INPUT SET: S7086.raw**

```

1327 CTG GAG AAC TCA CAT TTT GAA AAC GGC CGT GGG AAG AGT CCA TAT GAC
1328 531
1329 Leu Glu Asn Ser His Phe Glu Asn Gly Arg Gly Lys Ser Pro Tyr Asp
1330 160 165 170
1331
1332 CCT AAG CTG CTG ACA GCA TCC CTT TTA ATA GAT GGA GAA TTA TAC TCT
1333 579
1334 Pro Lys Leu Leu Thr Ala Ser Leu Leu Ile Asp Gly Glu Leu Tyr Ser
1335 175 180 185
1336
1337 GGA ACT GCA GCT GAT TTT ATG GGG CGA GAC TTT GCT ATC TTC CGA ACT
1338 627
1339 Gly Thr Ala Ala Asp Phe Met Gly Arg Asp Phe Ala Ile Phe Arg Thr
1340 190 195 200
1341
1342 CTT GGG CAC CAC CAC CCA ATC AGG ACA GAG CAG CAT GAT TCC AGG TGG
1343 675
1344 Leu Gly His His His Pro Ile Arg Thr Glu Gln His Asp Ser Arg Trp
1345 205 210 215 220
1346
1347 CTC AAT GAT CCA AAG TTC ATT AGT GCC CAC CTC ATC TCA GAG AGT GAC
1348 723
1349 Leu Asn Asp Pro Lys Phe Ile Ser Ala His Leu Ile Ser Glu Ser Asp
1350 225 230 235
1351
1352 AAT CCT GAA GAT GAC AAA GTA TAC TTT TTC TTC CGT GAA AAT GCA ATA
1353 771
1354 Asn Pro Glu Asp Asp Lys Val Tyr Phe Phe Phe Arg Glu Asn Ala Ile
1355 240 245 250
1356
1357 GAT GGA GAA CAC TCT GGA AAA GCT ACT CAC GCT AGA ATA GGT CAG ATA
1358 819
1359 Asp Gly Glu His Ser Gly Lys Ala Thr His Ala Arg Ile Gly Gln Ile
1360 255 260 265
1361
1362 TGC AAG AAT GAC TTT GGA GGG CAC AGA AGT CTG GTG AAT AAA TGG ACA
1363 867
1364 Cys Lys Asn Asp Phe Gly Gly His Arg Ser Leu Val Asn Lys Trp Thr
1365 270 275 280
1366
1367 ACA TTC CTC AAA GCT CGT CTG ATT TGC TCA GTG CCA GGT CCA AAT GGC
1368 915
1369 Thr Phe Leu Lys Ala Arg Leu Ile Cys Ser Val Pro Gly Pro Asn Gly
1370 285 290 295 300
1371
1372 ATT GAC ACT CAT TTT GAT GAA CTG CAG GAT GTA TTC CTA ATG AAC TTT
1373 963
1374 Ile Asp Thr His Phe Asp Glu Leu Gln Asp Val Phe Leu Met Asn Phe
1375 305 310 315
1376
1377 AAA GAT CCT AAA AAT CCA GTT GTA TAT GGA GTG TTT ACG ACT TCC AGT

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# RAW SEQUENCE LISTING PATENT APPLICATION *US/08/121,713*

DATE: 12/17/93  
TIME: 19:26:10

*INPUT SET: S7086.raw*

```

1378 1011
1379 Lys Asp Pro Lys Asn Pro Val Val Tyr Gly Val Phe Thr Thr Ser Ser
1380          320          325          330
1381
1382 AAC ATT TTC AAG GGA TCA GCC GTG TGT ATG TAT AGC ATG AGT GAT GTG
1383 1059
1384 Asn Ile Phe Lys Gly Ser Ala Val Cys Met Tyr Ser Met Ser Asp Val
1385          335          340          345
1386
1387 AGA AGG GTG TTC CTT GGT CCA TAT GCC CAC AGG GAT GGA CCC AAC TAT
1388 1107
1389 Arg Arg Val Phe Leu Gly Pro Tyr Ala His Arg Asp Gly Pro Asn Tyr
1390          350          355          360
1391
1392 CAA TGG GTG CCT TAT CAA GGA AGA GTC CCC TAT CCA CGG CCA GGA ACT
1393 1155
1394 Gln Trp Val Pro Tyr Gln Gly Arg Val Pro Tyr Pro Arg Pro Gly Thr
1395 365          370          375          380
1396
1397 TGT CCC AGC AAA ACA TTT GGT GGT TTT GAC TCT ACA AAG GAC CTT CCT
1398 1203
1399 Cys Pro Ser Lys Thr Phe Gly Gly Phe Asp Ser Thr Lys Asp Leu Pro
1400          385          390          395
1401
1402 GAT GAT GTT ATA ACC TTT GCA AGA AGT CAT CCA GCC ATG TAC AAT CCA
1403 1251
1404 Asp Asp Val Ile Thr Phe Ala Arg Ser His Pro Ala Met Tyr Asn Pro
1405          400          405          410
1406
1407 GTG TTT CCT ATG AAC AAT CGC CCA ATA GTG ATC AAA ACG GAT GTA AAT
1408 1299
1409 Val Phe Pro Met Asn Asn Arg Pro Ile Val Ile Lys Thr Asp Val Asn
1410          415          420          425
1411
1412 TAT CAA TTT ACA CAA ATT GTC GTA GAC CGA GTG GAT GCA GAA GAT GGA
1413 1347
1414 Tyr Gln Phe Thr Gln Ile Val Val Asp Arg Val Asp Ala Glu Asp Gly
1415          430          435          440
1416
1417 CAG TAT GAT GTT ATG TTT ATC GGA ACA GAT GTT GGG ACC GTT CTT AAA
1418 1395
1419 Gln Tyr Asp Val Met Phe Ile Gly Thr Asp Val Gly Thr Val Leu Lys
1420 445          450          455          460
1421
1422 GTA GTT TCA ATT CCT AAG GAG ACT TGG TAT GAT TTA GAA GAG GTT CTG
1423 1443
1424 Val Val Ser Ile Pro Lys Glu Thr Trp Tyr Asp Leu Glu Glu Val Leu
1425          465          470          475
1426
1427 CTG GAA GAA ATG ACA GTT TTT CGG GAA CCG ACT GCT ATT TCA GCA ATG
1428 1491

```

# **RAW SEQUENCE LISTING** **PATENT APPLICATION US/08/121,713**

DATE: 12/17/93  
 TIME: 19:26:16

*INPUT SET: S7086.raw*

```

1429  Leu Glu Glu Met Thr Val Phe Arg Glu Pro Thr Ala Ile Ser Ala Met
1430              480              485              490
1431
1432  GAG CTT TCC ACT AAG CAG CAA CAA CTA TAT ATT GGT TCA ACG GCT GGG
1433  1539
1434  Glu Leu Ser Thr Lys Gln Gln Gln Leu Tyr Ile Gly Ser Thr Ala Gly
1435              495              500              505
1436
1437  GTT GCC CAG CTC CCT TTA CAC CGG TGT GAT ATT TAC GGG AAA GCG TGT
1438  1587
1439  Val Ala Gln Leu Pro Leu His Arg Cys Asp Ile Tyr Gly Lys Ala Cys
1440              510              515              520
1441
1442  GCT GAG TGT TGC CTC GCC CGA GAC CCT TAC TGT GCT TGG GAT GGT TCT
1443  1635
1444  Ala Glu Cys Cys Leu Ala Arg Asp Pro Tyr Cys Ala Trp Asp Gly Ser
1445  525              530              535              540
1446
1447  GCA TGT TCT CGC TAT TTT CCC ACT GCA AAG AGA CGC ACA AGA CGA CAA
1448  1683
1449  Ala Cys Ser Arg Tyr Phe Pro Thr Ala Lys Arg Arg Thr Arg Arg Gln
1450              545              550              555
1451
1452  GAT ATA AGA AAT GGA GAC CCA CTG ACT CAC TGT TCA GAC TTA CAC CAT
1453  1731
1454  Asp Ile Arg Asn Gly Asp Pro Leu Thr His Cys Ser Asp Leu His His
1455              560              565              570
1456
1457  GAT AAT CAC CAT GGC CAC AGC CCT GAA GAG AGA ATC ATC TAT GGT GTA
1458  1779
1459  Asp Asn His His Gly His Ser Pro Glu Glu Arg Ile Ile Tyr Gly Val
1460              575              580              585
1461
1462  GAG AAT AGT AGC ACA TTT TTG GAA TGC AGT CCG AAG TCG CAG AGA GCG
1463  1827
1464  Glu Asn Ser Ser Thr Phe Leu Glu Cys Ser Pro Lys Ser Gln Arg Ala
1465              590              595              600
1466
1467  CTG GTC TAT TGG CAA TTC CAG AGG CGA AAT GAA GAG CGA AAA GAA GAG
1468  1875
1469  Leu Val Tyr Trp Gln Phe Gln Arg Arg Asn Glu Glu Arg Lys Glu Glu
1470  605              610              615              620
1471
1472  ATC AGA GTG GAT GAT CAT ATC ATC AGG ACA GAT CAA GGC CTT CTG CTA
1473  1923
1474  Ile Arg Val Asp Asp His Ile Ile Arg Thr Asp Gln Gly Leu Leu Leu
1475              625              630              635
1476
1477  CGT AGT CTA CAA CAG AAG GAT TCA GGC AAT TAC CTC TGC CAT GCG GTG
1478  1971
1479  Arg Ser Leu Gln Gln Lys Asp Ser Gly Asn Tyr Leu Cys His Ala Val

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# RAW SEQUENCE LISTING PATENT APPLICATION US/08/121,713

DATE: 12/17/93  
TIME: 19:26:22

INPUT SET: S7086.raw

```

1480          640          645          650
1481
1482 GAA CAT GGG TTC ATA CAA ACT CTT CTT AAG GTA ACC CTG GAA GTC ATT
1483 2019
1484 Glu His Gly Phe Ile Gln Thr Leu Leu Lys Val Thr Leu Glu Val Ile
1485          655          660          665
1486
1487 GAC ACA GAG CAT TTG GAA GAA CTT CTT CAT AAA GAT GAT GAT GGA GAT
1488 2067
1489 Asp Thr Glu His Leu Glu Glu Leu Leu His Lys Asp Asp Asp Gly Asp
1490          670          675          680
1491
1492 GGC TCT AAG ACC AAA GAA ATG TCC AAT AGC ATG ACA CCT AGC CAG AAG
1493 2115
1494 Gly Ser Lys Thr Lys Glu Met Ser Asn Ser Met Thr Pro Ser Gln Lys
1495 685          690          695          700
1496
1497 GTC TGG TAC AGA GAC TTC ATG CAG CTC ATC AAC CAC CCC AAT CTC AAC
1498 2163
1499 Val Trp Tyr Arg Asp Phe Met Gln Leu Ile Asn His Pro Asn Leu Asn
1500          705          710          715
1501
1502 ACG ATG GAT GAG TTC TGT GAA CAA GTT TGG AAA AGG GAC CGA AAA CAA
1503 2211
1504 Thr Met Asp Glu Phe Cys Glu Gln Val Trp Lys Arg Asp Arg Lys Gln
1505          720          725          730
1506
1507 CGT CGG CAA AGG CCA GGA CAT ACC CCA GGG AAC AGT AAC AAA TGG AAG
1508 2259
1509 Arg Arg Gln Arg Pro Gly His Thr Pro Gly Asn Ser Asn Lys Trp Lys
1510          735          740          745
1511
1512 CAC TTA CAA GAA AAT AAG AAA GGT AGA AAC AGG AGG ACC CAC GAA TTT
1513 2307
1514 His Leu Gln Glu Asn Lys Lys Gly Arg Asn Arg Arg Thr His Glu Phe
1515          750          755          760
1516
1517 GAG AGG GCA CCC AGG AGT GTC TGAGCTGCAT TACCTCTAGA AACCTCAAAC
1518 2358
1519 Glu Arg Ala Pro Arg Ser Val
1520          765          770
1521
1522 AAGTAGAAAC TTGCCTAGAC AATAACTGGA AAAACAAATG CAATATACAT GAACTTTTTT
1523 2418
1524
1525 CATGGCATTG TGTGGATGTT TACAATGGTG GGAAATTCAG CTGAGTTCCA CCAATTATAA
1526 2478
1527
1528 ATTAAATCCA TGAGTAACTT TCCTAATAGG CTTTTTTTTTC CTAATACCAC CGGGTTAAAA
1529 2538
1530

```

# **RAW SEQUENCE LISTING** **PATENT APPLICATION US/08/121,713**

DATE: 12/17/93  
 TIME: 19:26:29

**INPUT SET: S7086.raw**

```

1531  GTAAGAGACA GCTGAACCCT CGTGGAGCCA TTCATACAGG TCCCTATTTA AGGAACGGAA
1532  2598
1533
1534  TTC
1535  2601
1536
1537
1538  (2) INFORMATION FOR SEQ ID NO:54:
1539
1540      (i) SEQUENCE CHARACTERISTICS:
1541          (A) LENGTH: 771 amino acids
1542          (B) TYPE: amino acid
1543          (D) TOPOLOGY: linear
1544
1545      (ii) MOLECULE TYPE: protein
1546
1547      (xi) SEQUENCE DESCRIPTION: SEQ ID NO:54:
1548
1549  Met Gly Trp Leu Thr Arg Ile Val Cys Leu Phe Trp Gly Val Leu Leu
1550      1             5             10             15
1551
1552  Thr Ala Arg Ala Asn Tyr Gln Asn Gly Lys Asn Asn Val Pro Arg Leu
1553      20             25             30
1554
1555  Lys Leu Ser Tyr Lys Glu Met Leu Glu Ser Asn Asn Val Ile Thr Phe
1556      35             40             45
1557
1558  Asn Gly Leu Ala Asn Ser Ser Ser Tyr His Thr Phe Leu Leu Asp Glu
1559      50             55             60
1560
1561  Glu Arg Ser Arg Leu Tyr Val Gly Ala Lys Asp His Ile Phe Ser Phe
1562      65             70             75             80
1563
1564  Asp Leu Val Asn Ile Lys Asp Phe Gln Lys Ile Val Trp Pro Val Ser
1565      85             90             95
1566
1567  Tyr Thr Arg Arg Asp Glu Cys Lys Trp Ala Gly Lys Asp Ile Leu Lys
1568      100            105            110
1569
1570  Glu Cys Ala Asn Phe Ile Lys Val Leu Lys Ala Tyr Asn Gln Thr His
1571      115            120            125
1572
1573  Leu Tyr Ala Cys Gly Thr Gly Ala Phe His Pro Ile Cys Thr Tyr Ile
1574      130            135            140
1575
1576  Glu Ile Gly His His Pro Glu Asp Asn Ile Phe Lys Leu Glu Asn Ser
1577      145            150            155            160
1578
1579  His Phe Glu Asn Gly Arg Gly Lys Ser Pro Tyr Asp Pro Lys Leu Leu
1580      165            170            175
1581

```

# RAW SEQUENCE LISTING PATENT APPLICATION US/08/121,713

DATE: 12/17/93  
TIME: 19:26:35

INPUT SET: S7086.raw

```

1582 Thr Ala Ser Leu Leu Ile Asp Gly Glu Leu Tyr Ser Gly Thr Ala Ala
1583      180      185      190
1584
1585 Asp Phe Met Gly Arg Asp Phe Ala Ile Phe Arg Thr Leu Gly His His
1586      195      200      205
1587
1588 His Pro Ile Arg Thr Glu Gln His Asp Ser Arg Trp Leu Asn Asp Pro
1589      210      215      220
1590
1591 Lys Phe Ile Ser Ala His Leu Ile Ser Glu Ser Asp Asn Pro Glu Asp
1592      225      230      235      240
1593
1594 Asp Lys Val Tyr Phe Phe Phe Arg Glu Asn Ala Ile Asp Gly Glu His
1595      245      250      255
1596
1597 Ser Gly Lys Ala Thr His Ala Arg Ile Gly Gln Ile Cys Lys Asn Asp
1598      260      265      270
1599
1600 Phe Gly Gly His Arg Ser Leu Val Asn Lys Trp Thr Thr Phe Leu Lys
1601      275      280      285
1602
1603 Ala Arg Leu Ile Cys Ser Val Pro Gly Pro Asn Gly Ile Asp Thr His
1604      290      295      300
1605
1606 Phe Asp Glu Leu Gln Asp Val Phe Leu Met Asn Phe Lys Asp Pro Lys
1607      305      310      315      320
1608
1609 Asn Pro Val Val Tyr Gly Val Phe Thr Thr Ser Ser Asn Ile Phe Lys
1610      325      330      335
1611
1612 Gly Ser Ala Val Cys Met Tyr Ser Met Ser Asp Val Arg Arg Val Phe
1613      340      345      350
1614
1615 Leu Gly Pro Tyr Ala His Arg Asp Gly Pro Asn Tyr Gln Trp Val Pro
1616      355      360      365
1617
1618 Tyr Gln Gly Arg Val Pro Tyr Pro Arg Pro Gly Thr Cys Pro Ser Lys
1619      370      375      380
1620
1621 Thr Phe Gly Gly Phe Asp Ser Thr Lys Asp Leu Pro Asp Asp Val Ile
1622      385      390      395      400
1623
1624 Thr Phe Ala Arg Ser His Pro Ala Met Tyr Asn Pro Val Phe Pro Met
1625      405      410      415
1626
1627 Asn Asn Arg Pro Ile Val Ile Lys Thr Asp Val Asn Tyr Gln Phe Thr
1628      420      425      430
1629
1630 Gln Ile Val Val Asp Arg Val Asp Ala Glu Asp Gly Gln Tyr Asp Val
1631      435      440      445
1632

```



**INPUT SET: S7086.raw**

1633	Met	Phe	Ile	Gly	Thr	Asp	Val	Gly	Thr	Val	Leu	Lys	Val	Val	Ser	Ile
1634		450					455					460				
1635																
1636	Pro	Lys	Glu	Thr	Trp	Tyr	Asp	Leu	Glu	Glu	Val	Leu	Leu	Glu	Glu	Met
1637	465					470					475					480
1638																
1639	Thr	Val	Phe	Arg	Glu	Pro	Thr	Ala	Ile	Ser	Ala	Met	Glu	Leu	Ser	Thr
1640					485					490					495	
1641																
1642	Lys	Gln	Gln	Gln	Leu	Tyr	Ile	Gly	Ser	Thr	Ala	Gly	Val	Ala	Gln	Leu
1643				500					505					510		
1644																
1645	Pro	Leu	His	Arg	Cys	Asp	Ile	Tyr	Gly	Lys	Ala	Cys	Ala	Glu	Cys	Cys
1646			515					520					525			
1647																
1648	Leu	Ala	Arg	Asp	Pro	Tyr	Cys	Ala	Trp	Asp	Gly	Ser	Ala	Cys	Ser	Arg
1649		530					535					540				
1650																
1651	Tyr	Phe	Pro	Thr	Ala	Lys	Arg	Arg	Thr	Arg	Arg	Gln	Asp	Ile	Arg	Asn
1652	545					550					555					560
1653																
1654	Gly	Asp	Pro	Leu	Thr	His	Cys	Ser	Asp	Leu	His	His	Asp	Asn	His	His
1655					565					570					575	
1656																
1657	Gly	His	Ser	Pro	Glu	Glu	Arg	Ile	Ile	Tyr	Gly	Val	Glu	Asn	Ser	Ser
1658				580					585					590		
1659																
1660	Thr	Phe	Leu	Glu	Cys	Ser	Pro	Lys	Ser	Gln	Arg	Ala	Leu	Val	Tyr	Trp
1661			595					600					605			
1662																
1663	Gln	Phe	Gln	Arg	Arg	Asn	Glu	Glu	Arg	Lys	Glu	Glu	Ile	Arg	Val	Asp
1664		610					615					620				
1665																
1666	Asp	His	Ile	Ile	Arg	Thr	Asp	Gln	Gly	Leu	Leu	Leu	Arg	Ser	Leu	Gln
1667	625					630					635					640
1668																
1669	Gln	Lys	Asp	Ser	Gly	Asn	Tyr	Leu	Cys	His	Ala	Val	Glu	His	Gly	Phe
1670					645					650					655	
1671																
1672	Ile	Gln	Thr	Leu	Leu	Lys	Val	Thr	Leu	Glu	Val	Ile	Asp	Thr	Glu	His
1673				660					665					670		
1674																
1675	Leu	Glu	Glu	Leu	Leu	His	Lys	Asp	Asp	Asp	Gly	Asp	Gly	Ser	Lys	Thr
1676			675					680			</					

# RAW SEQUENCE LISTING PATENT APPLICATION *US/08/121,713*

DATE: 12/17/93  
TIME: 19:26:47

*INPUT SET: S7086.raw*

```

1684 Phe Cys Glu Gln Val Trp Lys Arg Asp Arg Lys Gln Arg Arg Gln Arg
1685                               725                               730                               735
1686
1687 Pro Gly His Thr Pro Gly Asn Ser Asn Lys Trp Lys His Leu Gln Glu
1688                   740                               745                               750
1689
1690 Asn Lys Lys Gly Arg Asn Arg Arg Thr His Glu Phe Glu Arg Ala Pro
1691                   755                               760                               765
1692
1693 Arg Ser Val
1694       770
1695
1696

```

(2) INFORMATION FOR SEQ ID NO:55:

(i) SEQUENCE CHARACTERISTICS:

- (A) **LENGTH: 1332 base pairs**
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(ix) FEATURE:

- (A) NAME/KEY: CDS
- (B) LOCATION: 7..1329

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:55:

```

1714 GGAATA ATG ATG GTA TTA TTA CAT GCT GTA TAC TCT ATA GTC TTT GTA
1715 48
1716 Met Met Val Leu Leu His Ala Val Tyr Ser Ile Val Phe Val
1717       1               5               10
1718
1719 GAT GTT ATA ATC ATA AAA GTA CAG AGG TAT ATC AAC GAT ATT CTA ACT
1720 96
1721 Asp Val Ile Ile Ile Lys Val Gln Arg Tyr Ile Asn Asp Ile Leu Thr
1722 15               20               25               30
1723
1724 CTT GAC ATT TTT TAT TTA TTT AAA ATG ATA CCT TTG TTA TTT ATT TTA
1725 144
1726 Leu Asp Ile Phe Tyr Leu Phe Lys Met Ile Pro Leu Leu Phe Ile Leu
1727       35               40               45
1728
1729 TTC TAT TTT GCT AAC GGT ATC GAA TGG CAT AAG TTT GAA ACG AGT GAA
1730 192
1731 Phe Tyr Phe Ala Asn Gly Ile Glu Trp His Lys Phe Glu Thr Ser Glu
1732 50               55               60
1733
1734

```

# RAW SEQUENCE LISTING PATENT APPLICATION US/08/121,713

DATE: 12/17/93  
TIME: 19:26:54

INPUT SET: S7086.raw

```

1735 GAA ATA ATT TCT ACT TAC TTA TTA GAC GAC GTA TTA TAC ACG GGT GTT
1736 240
1737 Glu Ile Ile Ser Thr Tyr Leu Leu Asp Asp Val Leu Tyr Thr Gly Val
1738      65                      70                      75
1739
1740 AAT GGG GCG GTA TAC ACA TTT TCA AAT AAT AAA CTA AAC AAA ACT GGT
1741 288
1742 Asn Gly Ala Val Tyr Thr Phe Ser Asn Asn Lys Leu Asn Lys Thr Gly
1743      80                      85                      90
1744
1745 TTA ACT AAT AAT AAT TAT ATA ACA ACA TCT ATA AAA GTA GAG GAT GCG
1746 336
1747 Leu Thr Asn Asn Asn Tyr Ile Thr Thr Ser Ile Lys Val Glu Asp Ala
1748      95                      100                      105                      110
1749
1750 GAT AAG GAT ACA TTA GTA TGC GGA ACC AAT AAC GGA AAT CCC AAA TGT
1751 384
1752 Asp Lys Asp Thr Leu Val Cys Gly Thr Asn Asn Gly Asn Pro Lys Cys
1753      115                      120                      125
1754
1755 TGG AAA ATA GAC GGT TCA GAC GAC CCA AAA CAT AGA GGT AGA GGA TAC
1756 432
1757 Trp Lys Ile Asp Gly Ser Asp Asp Pro Lys His Arg Gly Arg Gly Tyr
1758      130                      135                      140
1759
1760 GCT CCT TAT CAA AAT AGC AAA GTA ACG ATA ATC AGT CAC AAC GGA TGT
1761 480
1762 Ala Pro Tyr Gln Asn Ser Lys Val Thr Ile Ile Ser His Asn Gly Cys
1763      145                      150                      155
1764
1765 GTA CTA TCT GAC ATA AAC ATA TCA AAA GAA GGA ATT AAA CGA TGG AGA
1766 528
1767 Val Leu Ser Asp Ile Asn Ile Ser Lys Glu Gly Ile Lys Arg Trp Arg
1768      160                      165                      170
1769
1770 AGA TTT GAC GGA CCA TGT GGT TAT GAT TTA TAC ACG GCG GAT AAC GTA
1771 576
1772 Arg Phe Asp Gly Pro Cys Gly Tyr Asp Leu Tyr Thr Ala Asp Asn Val
1773      175                      180                      185                      190
1774
1775 ATT CCA AAA GAT GGT TTA CGA GGA GCA TTC GTC GAT AAA GAT GGT ACT
1776 624
1777 Ile Pro Lys Asp Gly Leu Arg Gly Ala Phe Val Asp Lys Asp Gly Thr
1778      195                      200                      205
1779
1780 TAT GAC AAA GTT TAC ATT CTT TTC ACT GAT ACT ATC GGC TCA AAG AGA
1781 672
1782 Tyr Asp Lys Val Tyr Ile Leu Phe Thr Asp Thr Ile Gly Ser Lys Arg
1783      210                      215                      220
1784
1785 ATT GTC AAA ATT CCG TAT ATA GCA CAA ATG TGC CTA AAC GAC GAA GGT

```

# **RAW SEQUENCE LISTING** **PATENT APPLICATION US/08/121,713**

DATE: 12/17/93  
 TIME: 19:27:01

**INPUT SET: S7086.raw**

```

1786 720
1787 Ile Val Lys Ile Pro Tyr Ile Ala Gln Met Cys Leu Asn Asp Glu Gly
1788      225      230      235
1789
1790 GGT CCA TCA TCA TTG TCT AGT CAT AGA TGG TCG ACG TTT CTC AAA GTC
1791 768
1792 Gly Pro Ser Ser Leu Ser Ser His Arg Trp Ser Thr Phe Leu Lys Val
1793      240      245      250
1794
1795 GAA TTA GAA TGT GAT ATC GAC GGA AGA AGT TAT AGA CAA ATT ATT CAT
1796 816
1797 Glu Leu Glu Cys Asp Ile Asp Gly Arg Ser Tyr Arg Gln Ile Ile His
1798 255      260      265      270
1799
1800 TCT AGA ACT ATA AAA ACA GAT AAT GAT ACG ATA CTA TAT GTA TTC TTC
1801 864
1802 Ser Arg Thr Ile Lys Thr Asp Asn Asp Thr Ile Leu Tyr Val Phe Phe
1803      275      280      285
1804
1805 GAT AGT CCT TAT TCC AAG TCC GCA TTA TGT ACC TAT TCT ATG AAT ACC
1806 912
1807 Asp Ser Pro Tyr Ser Lys Ser Ala Leu Cys Thr Tyr Ser Met Asn Thr
1808      290      295      300
1809
1810 ATT AAA CAA TCT TTT TCT ACG TCA AAA TTG GAA GGA TAT ACA AAG CAA
1811 960
1812 Ile Lys Gln Ser Phe Ser Thr Ser Lys Leu Glu Gly Tyr Thr Lys Gln
1813      305      310      315
1814
1815 TTG CCG TCG CCA GCC TCT GGT ATA TGT CTA CCA GCT GGA AAA GTT GTT
1816 1008
1817 Leu Pro Ser Pro Ala Ser Gly Ile Cys Leu Pro Ala Gly Lys Val Val
1818      320      325      330
1819
1820 CCA CAT ACC ACG TTT GAA GTC ATA GAA AAA TAT AAT GTA CTA GAT GAT
1821 1056
1822 Pro His Thr Thr Phe Glu Val Ile Glu Lys Tyr Asn Val Leu Asp Asp
1823 335      340      345      350
1824
1825 ATT ATA AAG CCT TTA TCT AAC CAA CCT ATC TTC GAA GGA CCG TCT GGT
1826 1104
1827 Ile Ile Lys Pro Leu Ser Asn Gln Pro Ile Phe Glu Gly Pro Ser Gly
1828      355      360      365
1829
1830 GTT AAA TGG TTC GAT ATA AAG GAG AAG GAA AAT GAA CAT CGG GAA TAT
1831 1152
1832 Val Lys Trp Phe Asp Ile Lys Glu Lys Glu Asn Glu His Arg Glu Tyr
1833      370      375      380
1834
1835 AGA ATA TAC TTC ATA AAA GAA AAT TCT ATA TAT TCG TTC GAT ACA AAA
1836 1200

```

**INPUT SET: S7086.raw**

```

1837 Arg Ile Tyr Phe Ile Lys Glu Asn Ser Ile Tyr Ser Phe Asp Thr Lys
1838      385                                390                                395
1839
1840 TCT AAA CAA ACT CGT AGC TCG CAA GTC GAT GCG CGA CTA TTT TCA GTA
1841 1248
1842 Ser Lys Gln Thr Arg Ser Ser Gln Val Asp Ala Arg Leu Phe Ser Val
1843      400                                405                                410
1844
1845 ATG GTA ACT TCG AAA CCG TTA TTT ATA GCA GAT ATA GGG ATA GGA GTA
1846 1296
1847 Met Val Thr Ser Lys Pro Leu Phe Ile Ala Asp Ile Gly Ile Gly Val
1848      415                                420                                425                                430
1849
1850 GGA ATG CCA CAA ATG AAA AAA ATA CTT AAA ATG TAA
1851 1332
1852 Gly Met Pro Gln Met Lys Lys Ile Leu Lys Met
1853      435                                440
1854
1855
1856 (2) INFORMATION FOR SEQ ID NO:56:
1857
1858     (i) SEQUENCE CHARACTERISTICS:
1859         (A) LENGTH: 441 amino acids
1860         (B) TYPE: amino acid
1861         (D) TOPOLOGY: linear
1862
1863     (ii) MOLECULE TYPE: protein
1864
1865     (xi) SEQUENCE DESCRIPTION: SEQ ID NO:56:
1866
1867 Met Met Val Leu Leu His Ala Val Tyr Ser Ile Val Phe Val Asp Val
1868      1              5              10              15
1869
1870 Ile Ile Ile Lys Val Gln Arg Tyr Ile Asn Asp Ile Leu Thr Leu Asp
1871      20              25              30
1872
1873 Ile Phe Tyr Leu Phe Lys Met Ile Pro Leu Leu Phe Ile Leu Phe Tyr
1874      35              40              45
1875
1876 Phe Ala Asn Gly Ile Glu Trp His Lys Phe Glu Thr Ser Glu Glu Ile
1877      50              55              60
1878
1879 Ile Ser Thr Tyr Leu Leu Asp Asp Val Leu Tyr Thr Gly Val Asn Gly
1880      65              70              75              80
1881
1882 Ala Val Tyr Thr Phe Ser Asn Asn Lys Leu Asn Lys Thr Gly Leu Thr
1883      85              90              95
1884
1885 Asn Asn Asn Tyr Ile Thr Thr Ser Ile Lys Val Glu Asp Ala Asp Lys
1886      100             105             110
1887

```

# RAW SEQUENCE LISTING PATENT APPLICATION US/08/121,713

DATE: 12/17/93  
TIME: 19:27:14

INPUT SET: S7086.raw

```

1888 Asp Thr Leu Val Cys Gly Thr Asn Asn Gly Asn Pro Lys Cys Trp Lys
1889      115      120      125
1890
1891 Ile Asp Gly Ser Asp Asp Pro Lys His Arg Gly Arg Gly Tyr Ala Pro
1892      130      135      140
1893
1894 Tyr Gln Asn Ser Lys Val Thr Ile Ile Ser His Asn Gly Cys Val Leu
1895      145      150      155      160
1896
1897 Ser Asp Ile Asn Ile Ser Lys Glu Gly Ile Lys Arg Trp Arg Arg Phe
1898      165      170      175
1899
1900 Asp Gly Pro Cys Gly Tyr Asp Leu Tyr Thr Ala Asp Asn Val Ile Pro
1901      180      185      190
1902
1903 Lys Asp Gly Leu Arg Gly Ala Phe Val Asp Lys Asp Gly Thr Tyr Asp
1904      195      200      205
1905
1906 Lys Val Tyr Ile Leu Phe Thr Asp Thr Ile Gly Ser Lys Arg Ile Val
1907      210      215      220
1908
1909 Lys Ile Pro Tyr Ile Ala Gln Met Cys Leu Asn Asp Glu Gly Gly Pro
1910      225      230      235      240
1911
1912 Ser Ser Leu Ser Ser His Arg Trp Ser Thr Phe Leu Lys Val Glu Leu
1913      245      250      255
1914
1915 Glu Cys Asp Ile Asp Gly Arg Ser Tyr Arg Gln Ile Ile His Ser Arg
1916      260      265      270
1917
1918 Thr Ile Lys Thr Asp Asn Asp Thr Ile Leu Tyr Val Phe Phe Asp Ser
1919      275      280      285
1920
1921 Pro Tyr Ser Lys Ser Ala Leu Cys Thr Tyr Ser Met Asn Thr Ile Lys
1922      290      295      300
1923
1924 Gln Ser Phe Ser Thr Ser Lys Leu Glu Gly Tyr Thr Lys Gln Leu Pro
1925      305      310      315      320
1926
1927 Ser Pro Ala Ser Gly Ile Cys Leu Pro Ala Gly Lys Val Val Pro His
1928      325      330      335
1929
1930 Thr Thr Phe Glu Val Ile Glu Lys Tyr Asn Val Leu Asp Asp Ile Ile
1931      340      345      350
1932
1933 Lys Pro Leu Ser Asn Gln Pro Ile Phe Glu Gly Pro Ser Gly Val Lys
1934      355      360      365
1935
1936 Trp Phe Asp Ile Lys Glu Lys Glu Asn Glu His Arg Glu Tyr Arg Ile
1937      370      375      380
1938

```

RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/121,713DATE: 12/17/93  
TIME: 19:27:21

INPUT SET: S7086.raw

1939 Tyr Phe Ile Lys Glu Asn Ser Ile Tyr Ser Phe Asp Thr Lys Ser Lys  
1940 385 390 395 400  
1941  
1942 Gln Thr Arg Ser Ser Gln Val Asp Ala Arg Leu Phe Ser Val Met Val  
1943 405 410 415  
1944  
1945 Thr Ser Lys Pro Leu Phe Ile Ala Asp Ile Gly Ile Gly Val Gly Met  
1946 420 425 430  
1947  
1948 Pro Gln Met Lys Lys Ile Leu Lys Met  
1949 435 440  
1950  
1951

## (2) INFORMATION FOR SEQ ID NO:57:

## (i) SEQUENCE CHARACTERISTICS:

- > 1955 (A) LENGTH: 2854 base pairs  
1956 (B) TYPE: nucleic acid  
1957 (C) STRANDEDNESS: double  
1958 (D) TOPOLOGY: linear  
1959

## (ii) MOLECULE TYPE: cDNA

## (ix) FEATURE:

- 1964 (A) NAME/KEY: CDS  
1965 (B) LOCATION: 451..2640  
1966  
1967

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO:57:

1968  
1969  
1970 ATTCCACCTC CCGCTGACCG CCTACGCCGC GACGATCTTT CCTCTCGCCA GGCGAAAACCT  
1971 60  
1972  
1973 ACGACGTGTC AACAAACATTT TTGTTTTTTC TGCTTCCGTG TTTTCATGTT CCGTGAAACC  
1974 120  
1975  
1976 GCTTCTCGCA TTACCACTCT TCCGTTTCCC AGTGTTTGTT TTCTCCGTTT CTTTCATCGT  
1977 180  
1978  
1979 GGATGTTTTG TTTTGGTGTA GCGAGTGACG AGCTTATGTC ATTAAACGTA CATCCAATCT  
1980 240  
1981  
1982 GTCGGTATAT TGGTGTGTGA TATTTTACTA TTATATATTT AGCCATCACT TGAAAGCCGT  
1983 300  
1984  
1985 GAAAAATTTT TGAAAGTGGA GAGGAAAAAG AAAAGGCGCA GAAGGCTTTT TAAGCTTCAT  
1986 360  
1987  
1988 GGATATGTGC TCTACGCTTC AACTACTGTC GCAGAATCAT CTTCCGGGAA AGGAAATTTT  
1989 420

# RAW SEQUENCE LISTING PATENT APPLICATION *US/08/121,713*

DATE: 12/17/93  
TIME: 19:27:28

*INPUT SET: S7086.raw*

```

1990
1991 GCCTGAAATG GTGCCGCGGC CGCACTGAAC ATG CGG GCG GCG CTG GTG GCC GTC
1992 474
1993 Met Arg Ala Ala Leu Val Ala Val
1994 1 5
1995
1996 GCG GCG CTG CTT TGG GTG GCG CTG CAC GCC GCC GCA TGG GTC AAC GAC
1997 522
1998 Ala Ala Leu Leu Trp Val Ala Leu His Ala Ala Ala Trp Val Asn Asp
1999 10 15 20
2000
2001 GTC AGC CCC AAG ATG TAC GTC CAG TTC GGT GAG GAA CGG GTG CAA CGC
2002 570
2003 Val Ser Pro Lys Met Tyr Val Gln Phe Gly Glu Glu Arg Val Gln Arg
2004 25 30 35 40
2005
2006 TTC CTG GGC AAT GAA TCG CAC AAA GAC CAC TTC AAG CTG CTG GAG AAG
2007 618
2008 Phe Leu Gly Asn Glu Ser His Lys Asp His Phe Lys Leu Leu Glu Lys
2009 45 50 55
2010
2011 GAC CAC AAC TCG CTC CTC GTA GGA GCT AGG AAC ATC GTC TAC AAT ATC
2012 666
2013 Asp His Asn Ser Leu Leu Val Gly Ala Arg Asn Ile Val Tyr Asn Ile
2014 60 65 70
2015
2016 AGC CTT CGA GAC CTC ACA GAA TTC ACC GAG CAG AGG ATC GAG TGG CAC
2017 714
2018 Ser Leu Arg Asp Leu Thr Glu Phe Thr Glu Gln Arg Ile Glu Trp His
2019 75 80 85
2020
2021 TCG TCA GGT GCC CAT CGC GAG CTC TGC TAC CTC AAG GGG AAG TCA GAG
2022 762
2023 Ser Ser Gly Ala His Arg Glu Leu Cys Tyr Leu Lys Gly Lys Ser Glu
2024 90 95 100
2025
2026 GAC GAC TGC CAG AAC TAC ATC CGA GTC CTG GCG AAA ATT GAC GAT GAC
2027 810
2028 Asp Asp Cys Gln Asn Tyr Ile Arg Val Leu Ala Lys Ile Asp Asp Asp
2029 105 110 115 120
2030
2031 CGC GTA CTC ATC TGC GGT ACG AAC GCC TAT AAG CCA CTA TGT CGG CAC
2032 858
2033 Arg Val Leu Ile Cys Gly Thr Asn Ala Tyr Lys Pro Leu Cys Arg His
2034 125 130 135
2035
2036 TAC GCC CTC AAG GAT GGA GAT TAT GTT GTA GAG AAA GAA TAT GAG GGA
2037 906
2038 Tyr Ala Leu Lys Asp Gly Asp Tyr Val Val Glu Lys Glu Tyr Glu Gly
2039 140 145 150
2040

```



# RAW SEQUENCE LISTING PATENT APPLICATION US/08/121,713

DATE: 12/17/93  
TIME: 19:27:34

INPUT SET: S7086.raw

```

2041 AGA GGA TTG TGC CCA TTT GAC CCT GAC CAC AAC AGC ACT GCA ATA TAC
2042 954
2043 Arg Gly Leu Cys Pro Phe Asp Pro Asp His Asn Ser Thr Ala Ile Tyr
2044      155                      160                      165
2045
2046 AGT GAG GGA CAA TTG TAC TCA GCA ACA GTG GCA GAC TTC TCT GGA ACT
2047 1002
2048 Ser Glu Gly Gln Leu Tyr Ser Ala Thr Val Ala Asp Phe Ser Gly Thr
2049      170                      175                      180
2050
2051 GAC CCT CTC ATA TAC CGC GGC CCT CTA AGA ACA GAG AGA TCT GAC CTC
2052 1050
2053 Asp Pro Leu Ile Tyr Arg Gly Pro Leu Arg Thr Glu Arg Ser Asp Leu
2054 185                      190                      195                      200
2055
2056 AAA CAA TTA AAT GCT CCT AAC TTT GTC AAC ACA ATG GAG TAC AAT GAT
2057 1098
2058 Lys Gln Leu Asn Ala Pro Asn Phe Val Asn Thr Met Glu Tyr Asn Asp
2059      205                      210                      215
2060
2061 TTT ATA TTC TTC TTC TTC CGA GAG ACT GCT GTT GAG TAC ATC AAC TGC
2062 1146
2063 Phe Ile Phe Phe Phe Phe Arg Glu Thr Ala Val Glu Tyr Ile Asn Cys
2064      220                      225                      230
2065
2066 GGA AAG GCT ATC TAT TCA AGA GTT GCC AGA GTC TGT AAA CAT GAC AAG
2067 1194
2068 Gly Lys Ala Ile Tyr Ser Arg Val Ala Arg Val Cys Lys His Asp Lys
2069      235                      240                      245
2070
2071 GGC GGC CCT CAT CAG GGT GGT GAC AGA TGG ACT TCT TTT TTG AAA TCA
2072 1242
2073 Gly Gly Pro His Gln Gly Gly Asp Arg Trp Thr Ser Phe Leu Lys Ser
2074      250                      255                      260
2075
2076 CGT CTG AAC TGT TCC GTC CCT GGA GAT TAT CCA TTT TAC TTC AAT GAA
2077 1290
2078 Arg Leu Asn Cys Ser Val Pro Gly Asp Tyr Pro Phe Tyr Phe Asn Glu
2079 265                      270                      275                      280
2080
2081 ATT CAG TCA ACA AGT GAC ATC ATT GAA GGA AAT TAT GGT GGT CAA GTG
2082 1338
2083 Ile Gln Ser Thr Ser Asp Ile Ile Glu Gly Asn Tyr Gly Gly Gln Val
2084      285                      290                      295
2085
2086 GAG AAA CTC ATC TAC GGT GTC TTC ACG ACA CCA GTG AAC TCT ATT GGT
2087 1386
2088 Glu Lys Leu Ile Tyr Gly Val Phe Thr Thr Pro Val Asn Ser Ile Gly
2089      300                      305                      310
2090
2091 GGC TCT GCT GTT TGT GCC TTC AGT ATG AAG TCA ATA CTT GAG TCA TTT

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# RAW SEQUENCE LISTING PATENT APPLICATION US/08/121,713

DATE: 12/17/93  
TIME: 19:27:41

INPUT SET: S7086.raw

```

2092 1434
2093 Gly Ser Ala Val Cys Ala Phe Ser Met Lys Ser Ile Leu Glu Ser Phe
2094          315                      320                      325
2095
2096 GAT GGT CCA TTT AAA GAG CAG GAA ACG ATG AAC TCA AAC TGG TTG GCA
2097 1482
2098 Asp Gly Pro Phe Lys Glu Gln Glu Thr Met Asn Ser Asn Trp Leu Ala
2099      330                      335                      340
2100
2101 GTG CCA AGC CTT AAA GTG CCA GAA CCA AGG CCT GGA CAA TGT GTG AAT
2102 1530
2103 Val Pro Ser Leu Lys Val Pro Glu Pro Arg Pro Gly Gln Cys Val Asn
2104 345                      350                      355                      360
2105
2106 GAC AGT CGT ACA CTT CCT GAT GTG TCT GTC AAT TTT GTA AAG TCA CAT
2107 1578
2108 Asp Ser Arg Thr Leu Pro Asp Val Ser Val Asn Phe Val Lys Ser His
2109          365                      370                      375
2110
2111 ACA CTG ATG GAT GAG GCC GTG CCA GCA TTT TTT ACT CGG CCA ATT CTC
2112 1626
2113 Thr Leu Met Asp Glu Ala Val Pro Ala Phe Phe Thr Arg Pro Ile Leu
2114          380                      385                      390
2115
2116 ATT CGG ATC AGC TTA CAG TAC AGA TTT ACA AAA ATA GCT GTT GAT CAA
2117 1674
2118 Ile Arg Ile Ser Leu Gln Tyr Arg Phe Thr Lys Ile Ala Val Asp Gln
2119          395                      400                      405
2120
2121 CAA GTC CGA ACA CCA GAT GGG AAA GCG TAT GAT GTC CTG TTT ATA GGA
2122 1722
2123 Gln Val Arg Thr Pro Asp Gly Lys Ala Tyr Asp Val Leu Phe Ile Gly
2124      410                      415                      420
2125
2126 ACT GAT GAT GGC AAA GTG ATA AAA GCT TTG AAC TCT GCC TCC TTT GAT
2127 1770
2128 Thr Asp Asp Gly Lys Val Ile Lys Ala Leu Asn Ser Ala Ser Phe Asp
2129 425                      430                      435                      440
2130
2131 TCA TCT GAT ACT GTA GAT AGT GTT GTA ATA GAA GAA CTG CAA GTG TTG
2132 1818
2133 Ser Ser Asp Thr Val Asp Ser Val Val Ile Glu Glu Leu Gln Val Leu
2134          445                      450                      455
2135
2136 CCA CCT GGA GTA CCT GTT AAG AAC CTG TAT GTG GTG CGA ATG GAT GGG
2137 1866
2138 Pro Pro Gly Val Pro Val Lys Asn Leu Tyr Val Val Arg Met Asp Gly
2139          460                      465                      470
2140
2141 GAT GAT AGC AAG CTG GTG GTT GTG TCT GAT GAT GAG ATT CTG GCA ATT
2142 1914

```

# RAW SEQUENCE LISTING PATENT APPLICATION US/08/121,713

DATE: 12/17/93  
TIME: 19:27:48

INPUT SET: S7086.raw

```

2143 Asp Asp Ser Lys Leu Val Val Val Ser Asp Asp Glu Ile Leu Ala Ile
2144      475                        480                        485
2145
2146 AAG CTT CAT CGT TGT GGC TCA GAT AAA ATA ACA AAT TGT CGA GAA TGT
2147 1962
2148 Lys Leu His Arg Cys Gly Ser Asp Lys Ile Thr Asn Cys Arg Glu Cys
2149      490                        495                        500
2150
2151 GTG TCC TTG CAA GAT CCT TAC TGT GCA TGG GAC AAT GTA GAA TTA AAA
2152 2010
2153 Val Ser Leu Gln Asp Pro Tyr Cys Ala Trp Asp Asn Val Glu Leu Lys
2154 505                        510                        515                        520
2155
2156 TGT ACA GCT GTA GGT TCA CCA GAC TGG AGT GCT GGA AAA AGA CGC TTT
2157 2058
2158 Cys Thr Ala Val Gly Ser Pro Asp Trp Ser Ala Gly Lys Arg Arg Phe
2159      525                        530                        535
2160
2161 ATT CAG AAC ATT TCA CTC GGT GAA CAT AAA GCT TGT GGT GGA CGT CCA
2162 2106
2163 Ile Gln Asn Ile Ser Leu Gly Glu His Lys Ala Cys Gly Gly Arg Pro
2164      540                        545                        550
2165
2166 CAA ACA GAA ATC GTT GCT TCT CCT GTA CCA ACT CAG CCG ACG ACA AAA
2167 2154
2168 Gln Thr Glu Ile Val Ala Ser Pro Val Pro Thr Gln Pro Thr Thr Lys
2169      555                        560                        565
2170
2171 TCT AGT GGC GAT CCC GTT CAT TCA ATC CAC CAG GCT GAA TTT GAA CCT
2172 2202
2173 Ser Ser Gly Asp Pro Val His Ser Ile His Gln Ala Glu Phe Glu Pro
2174      570                        575                        580
2175
2176 GAA ATT GAC AAC GAG ATT GTT ATT GGA GTA GAT GAC AGC AAC GTC ATT
2177 2250
2178 Glu Ile Asp Asn Glu Ile Val Ile Gly Val Asp Asp Ser Asn Val Ile
2179 585                        590                        595                        600
2180
2181 CCT AAT ACC CTG GCT GAA ATA AAT CAT GCA GGT TCA AAG CTG CCT TCC
2182 2298
2183 Pro Asn Thr Leu Ala Glu Ile Asn His Ala Gly Ser Lys Leu Pro Ser
2184      605                        610                        615
2185
2186 TCC CAG GAA AAG TTG CCT ATT TAT ACA GCG GAG ACT CTG ACT ATT GCT
2187 2346
2188 Ser Gln Glu Lys Leu Pro Ile Tyr Thr Ala Glu Thr Leu Thr Ile Ala
2189      620                        625                        630
2190
2191 ATA GTT ACA TCA TGC CTT GGA GCT CTA GTT GTT GGC TTC ATC TCT GGA
2192 2394
2193 Ile Val Thr Ser Cys Leu Gly Ala Leu Val Val Gly Phe Ile Ser Gly

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RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/121,713DATE: 12/17/93  
TIME: 19:27:55

INPUT SET: S7086.raw

```
2194          635          640          645
2195
2196 TTT CTT TTT TCT CGG CGA TGC AGG GGA GAG GAT TAC ACA GAC ATG CCT
2197 2442
2198 Phe Leu Phe Ser Arg Arg Cys Arg Gly Glu Asp Tyr Thr Asp Met Pro
2199     650          655          660
2200
2201 TTT CCA GAT CAA CGC CAT CAG CTA AAT AGG CTC ACT GAG GCT GGT CTG
2202 2490
2203 Phe Pro Asp Gln Arg His Gln Leu Asn Arg Leu Thr Glu Ala Gly Leu
2204 665          670          675          680
2205
2206 AAT GCA GAC TCA CCC TAT CTT CCA CCC TGT GCC AAT AAC AAG GCA GCC
2207 2538
2208 Asn Ala Asp Ser Pro Tyr Leu Pro Pro Cys Ala Asn Asn Lys Ala Ala
2209          685          690          695
2210
2211 ATA AAT CTT GTG CTC AAT GTC CCA CCA AAG AAT GCA AAT GGA AAA AAT
2212 2586
2213 Ile Asn Leu Val Leu Asn Val Pro Pro Lys Asn Ala Asn Gly Lys Asn
2214          700          705          710
2215
2216 GCC AAC TCT TCA GCT GAA AAC AAA CCA ATA CAG AAA GTA AAA AAG ACA
2217 2634
2218 Ala Asn Ser Ser Ala Glu Asn Lys Pro Ile Gln Lys Val Lys Lys Thr
2219          715          720          725
2220
2221 TAC ATT TAGCAGAAAT CTTTGGTATC TGTTTTGGTG CAGACCCATG CCACTAGAGT
2222 2690
2223 Tyr Ile
2224     730
2225
2226 AACCAAGACT CTATTGAGAA ATGTCCTCAA GAAAGTTAAA AAGATGTAGA CTTCTGTAAT
2227 2750
2228
2229 CGAGAGCACC ACTTTCCATA GTAATACAGA ACAATGTGAA ATAAATACTA CAGAAGAAGT
2230 2810
2231
2232 CTTTGTTACA CAAAAAAGTG TATAGTGATC TGTGATCAGT TTCG
2233 2854
2234
2235
2236 (2) INFORMATION FOR SEQ ID NO:58:
2237
2238     (i) SEQUENCE CHARACTERISTICS:
2239         (A) LENGTH: 730 amino acids
2240         (B) TYPE: amino acid
2241         (D) TOPOLOGY: linear
2242
2243     (ii) MOLECULE TYPE: protein
2244
```

# RAW SEQUENCE LISTING PATENT APPLICATION *US/08/121,713*

DATE: 12/17/93  
TIME: 19:28:01

INPUT SET: *S7086.raw*

2245 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:58:  
2246  
2247 Met Arg Ala Ala Leu Val Ala Val Ala Ala Leu Leu Trp Val Ala Leu  
2248 1 5 10 15  
2249  
2250 His Ala Ala Ala Trp Val Asn Asp Val Ser Pro Lys Met Tyr Val Gln  
2251 20 25 30  
2252  
2253 Phe Gly Glu Glu Arg Val Gln Arg Phe Leu Gly Asn Glu Ser His Lys  
2254 35 40 45  
2255  
2256 Asp His Phe Lys Leu Leu Glu Lys Asp His Asn Ser Leu Leu Val Gly  
2257 50 55 60  
2258  
2259 Ala Arg Asn Ile Val Tyr Asn Ile Ser Leu Arg Asp Leu Thr Glu Phe  
2260 65 70 75 80  
2261  
2262 Thr Glu Gln Arg Ile Glu Trp His Ser Ser Gly Ala His Arg Glu Leu  
2263 85 90 95  
2264  
2265 Cys Tyr Leu Lys Gly Lys Ser Glu Asp Asp Cys Gln Asn Tyr Ile Arg  
2266 100 105 110  
2267  
2268 Val Leu Ala Lys Ile Asp Asp Asp Arg Val Leu Ile Cys Gly Thr Asn  
2269 115 120 125  
2270  
2271 Ala Tyr Lys Pro Leu Cys Arg His Tyr Ala Leu Lys Asp Gly Asp Tyr  
2272 130 135 140  
2273  
2274 Val Val Glu Lys Glu Tyr Glu Gly Arg Gly Leu Cys Pro Phe Asp Pro  
2275 145 150 155 160  
2276  
2277 Asp His Asn Ser Thr Ala Ile Tyr Ser Glu Gly Gln Leu Tyr Ser Ala  
2278 165 170 175  
2279  
2280 Thr Val Ala Asp Phe Ser Gly Thr Asp Pro Leu Ile Tyr Arg Gly Pro  
2281 180 185 190  
2282  
2283 Leu Arg Thr Glu Arg Ser Asp Leu Lys Gln Leu Asn Ala Pro Asn Phe  
2284 195 200 205  
2285  
2286 Val Asn Thr Met Glu Tyr Asn Asp Phe Ile Phe Phe Phe Arg Glu  
2287 210 215 220  
2288  
2289 Thr Ala Val Glu Tyr Ile Asn Cys Gly Lys Ala Ile Tyr Ser Arg Val  
2290 225 230 235 240  
2291  
2292 Ala Arg Val Cys Lys His Asp Lys Gly Gly Pro His Gln Gly Gly Asp  
2293 245 250 255  
2294  
2295 Arg Trp Thr Ser Phe Leu Lys Ser Arg Leu Asn Cys Ser Val Pro Gly

**RAW SEQUENCE LISTING**  
**PATENT APPLICATION US/08/121,713**

DATE: 12/17/93  
TIME: 19:28:08

**INPUT SET: S7086.raw**

2296		260		265		270	
2297							
2298	Asp	Tyr	Pro	Phe	Tyr	Phe	Asn
2299			275				280
2300							285
2301	Glu	Gly	Asn	Tyr	Gly	Gly	Gln
2302		290					295
2303							300
2304	Thr	Thr	Pro	Val	Asn	Ser	Ile
2305	305				310		315
2306							
2307	Met	Lys	Ser	Ile	Leu	Glu	Ser
2308				325			330
2309							335
2310	Thr	Met	Asn	Ser	Asn	Trp	Leu
2311			340				345
2312							350
2313	Pro	Arg	Pro	Gly	Gln	Cys	Val
2314			355				360
2315							365
2316	Ser	Val	Asn	Phe	Val	Lys	Ser
2317		370				375	
2318							380
2319	Ala	Phe	Phe	Thr	Arg	Pro	Ile
2320	385				390		395
2321							400
2322	Phe	Thr	Lys	Ile	Ala	Val	Asp
2323				405			410
2324							415
2325	Ala	Tyr	Asp	Val	Leu	Phe	Ile
2326			420				425
2327							430
2328	Ala	Leu	Asn	Ser	Ala	Ser	Phe
2329			435			440	
2330							445
2331	Val	Ile	Glu	Glu	Leu	Gln	Val
2332		450				455	460
2333							
2334	Leu	Tyr	Val	Val	Arg	Met	Asp
2335	465				470		475
2336							480
2337	Ser	Asp	Asp	Glu	Ile	Leu	Ala
2338				485			490
2339							495
2340	Lys	Ile	Thr	Asn	Cys	Arg	Glu
2341				500			505
2342							510
2343	Ala	Trp	Asp	Asn	Val	Glu	Leu
2344			515			520	525
2345							
2346	Trp	Ser	Ala	Gly	Lys	Arg	Arg

RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/121,713DATE: 12/17/93  
TIME: 19:28:15

INPUT SET: S7086.raw

2347           530                   535                   540  
2348  
2349   His Lys Ala Cys Gly Gly Arg Pro Gln Thr Glu Ile Val Ala Ser Pro  
2350   545                   550                   555                   560  
2351  
2352   Val Pro Thr Gln Pro Thr Thr Lys Ser Ser Gly Asp Pro Val His Ser  
2353                   565                   570                   575  
2354  
2355   Ile His Gln Ala Glu Phe Glu Pro Glu Ile Asp Asn Glu Ile Val Ile  
2356                   580                   585                   590  
2357  
2358   Gly Val Asp Asp Ser Asn Val Ile Pro Asn Thr Leu Ala Glu Ile Asn  
2359                   595                   600                   605  
2360  
2361   His Ala Gly Ser Lys Leu Pro Ser Ser Gln Glu Lys Leu Pro Ile Tyr  
2362           610                   615                   620  
2363  
2364   Thr Ala Glu Thr Leu Thr Ile Ala Ile Val Thr Ser Cys Leu Gly Ala  
2365   625                   630                   635                   640  
2366  
2367   Leu Val Val Gly Phe Ile Ser Gly Phe Leu Phe Ser Arg Arg Cys Arg  
2368                   645                   650                   655  
2369  
2370   Gly Glu Asp Tyr Thr Asp Met Pro Phe Pro Asp Gln Arg His Gln Leu  
2371                   660                   665                   670  
2372  
2373   Asn Arg Leu Thr Glu Ala Gly Leu Asn Ala Asp Ser Pro Tyr Leu Pro  
2374                   675                   680                   685  
2375  
2376   Pro Cys Ala Asn Asn Lys Ala Ala Ile Asn Leu Val Leu Asn Val Pro  
2377           690                   695                   700  
2378  
2379   Pro Lys Asn Ala Asn Gly Lys Asn Ala Asn Ser Ser Ala Glu Asn Lys  
2380   705                   710                   715                   720  
2381  
2382   Pro Ile Gln Lys Val Lys Lys Thr Tyr Ile  
2383                   725                   730  
2384

(2) INFORMATION FOR SEQ ID NO:59:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 3560 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(ix) FEATURE:

(A) NAME/KEY: CDS

# RAW SEQUENCE LISTING PATENT APPLICATION US/08/121,713

DATE: 12/17/93  
TIME: 19:28:22

INPUT SET: S7086.raw

2398 (B) LOCATION: 1..1953  
2399  
2400  
2401 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:59:  
2402  
2403 GAG GAT GAT TGT CAG AAT TAC ATC CGC ATC ATG GTG GTG CCA TCG CCG  
2404 48  
2405 Glu Asp Asp Cys Gln Asn Tyr Ile Arg Ile Met Val Val Pro Ser Pro  
2406 1 5 10 15  
2407  
2408 GGT CGC CTT TTC GTT TGT GGC ACC AAC TCG TTC CGG CCC ATG TGC AAC  
2409 96  
2410 Gly Arg Leu Phe Val Cys Gly Thr Asn Ser Phe Arg Pro Met Cys Asn  
2411 20 25 30  
2412  
2413 ACG TAT ATC ATT AGT GAC AGC AAC TAC ACG CTG GAG GCC ACG AAG AAC  
2414 144  
2415 Thr Tyr Ile Ile Ser Asp Ser Asn Tyr Thr Leu Glu Ala Thr Lys Asn  
2416 35 40 45  
2417  
2418 GGA CAG GCG GTG TGC CCC TAC GAT CCA CGT CAC AAC TCC ACC TCT GTG  
2419 192  
2420 Gly Gln Ala Val Cys Pro Tyr Asp Pro Arg His Asn Ser Thr Ser Val  
2421 50 55 60  
2422  
2423 CTG GCC GAC AAC GAA CTG TAT TCC GGT ACC GTG GCG GAT TTC AGT GGC  
2424 240  
2425 Leu Ala Asp Asn Glu Leu Tyr Ser Gly Thr Val Ala Asp Phe Ser Gly  
2426 65 70 75 80  
2427  
2428 AGC GAT CCG ATT ATC TAC CGG GAG CCC CTG CAG ACC GAG CAG TAC GAT  
2429 288  
2430 Ser Asp Pro Ile Ile Tyr Arg Glu Pro Leu Gln Thr Glu Gln Tyr Asp  
2431 85 90 95  
2432  
2433 AGC CTA AGT CTC AAC GCA CCG AAC TTT GTG AGC TCA TTT ACG CAG GGC  
2434 336  
2435 Ser Leu Ser Leu Asn Ala Pro Asn Phe Val Ser Ser Phe Thr Gln Gly  
2436 100 105 110  
2437  
2438 GAC TTT GTC TAT TTC TTC TTT CGG GAA ACC GCC GTT GAG TTT ATC AAC  
2439 384  
2440 Asp Phe Val Tyr Phe Phe Phe Arg Glu Thr Ala Val Glu Phe Ile Asn  
2441 115 120 125  
2442  
2443 TGT GGC AAG GCG ATT TAT TCG CGC GTT GCC CGC GTC TGC AAA TGG GAC  
2444 432  
2445 Cys Gly Lys Ala Ile Tyr Ser Arg Val Ala Arg Val Cys Lys Trp Asp  
2446 130 135 140  
2447  
2448 AAA GGT GGC CCG CAT CGA TTC CGC AAC CGC TGG ACA TCC TTC CTC AAG



# RAW SEQUENCE LISTING PATENT APPLICATION *US/08/121,713*

DATE: 12/17/93  
TIME: 19:28:29

*INPUT SET: S7086.raw*

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2449 480
2450 Lys Gly Gly Pro His Arg Phe Arg Asn Arg Trp Thr Ser Phe Leu Lys
2451 145 150 155 160
2452
2453 TCC CGC CTC AAC TGC TCC ATT CCC GGC GAT TAT CCT TTC TAC TTT AAT
2454 528
2455 Ser Arg Leu Asn Cys Ser Ile Pro Gly Asp Tyr Pro Phe Tyr Phe Asn
2456 165 170 175
2457
2458 GAA ATC CAA TCT GCC AGC AAT CTG GTG GAG GGA CAG TAT GGC TCG ATG
2459 576
2460 Glu Ile Gln Ser Ala Ser Asn Leu Val Glu Gly Gln Tyr Gly Ser Met
2461 180 185 190
2462
2463 AGC TCG AAA CTG ATC TAC GGA GTC TTC AAC ACG CCG AGC AAC TCA ATT
2464 624
2465 Ser Ser Lys Leu Ile Tyr Gly Val Phe Asn Thr Pro Ser Asn Ser Ile
2466 195 200 205
2467
2468 CCC GGC TCA GCG GTT TGT GCC TTT GCC CTC CAG GAC ATT GCC GAT ACG
2469 672
2470 Pro Gly Ser Ala Val Cys Ala Phe Ala Leu Gln Asp Ile Ala Asp Thr
2471 210 215 220
2472
2473 TTT GAG GGT CAG TTC AAG GAG CAG ACT GGC ATC AAC TCC AAC TGG CTG
2474 720
2475 Phe Glu Gly Gln Phe Lys Glu Gln Thr Gly Ile Asn Ser Asn Trp Leu
2476 225 230 235 240
2477
2478 CCA GTG AAC AAC GCC AAG GTA CCC GAT CCT CGA CCC GGT TCC TGT CAC
2479 768
2480 Pro Val Asn Asn Ala Lys Val Pro Asp Pro Arg Pro Gly Ser Cys His
2481 245 250 255
2482
2483 AAC GAT TCG AGA GCG CTT CCG GAT CCC ACA CTG AAC TTC ATC AAA ACA
2484 816
2485 Asn Asp Ser Arg Ala Leu Pro Asp Pro Thr Leu Asn Phe Ile Lys Thr
2486 260 265 270
2487
2488 CAT TCG CTA ATG GAC GAG AAT GTG CCG GCA TTT TTC AGT CAA CCG ATT
2489 864
2490 His Ser Leu Met Asp Glu Asn Val Pro Ala Phe Phe Ser Gln Pro Ile
2491 275 280 285
2492
2493 TTG GTC CGG ACG AGC ACA ATA TAC CGC TTC ACT CAA ATC GCC GTA GAT
2494 912
2495 Leu Val Arg Thr Ser Thr Ile Tyr Arg Phe Thr Gln Ile Ala Val Asp
2496 290 295 300
2497
2498 GCG CAG ATT AAA ACT CCT GGC GGC AAG ACA TAT GAT GTT ATC TTT GTG
2499 960

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# RAW SEQUENCE LISTING PATENT APPLICATION *US/08/121,713*

DATE: 12/17/93  
TIME: 19:28:36

*INPUT SET: S7086.raw*

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2500  Ala Gln Ile Lys Thr Pro Gly Gly Lys Thr Tyr Asp Val Ile Phe Val
2501  305                               310                   315                   320
2502
2503  GGC ACA GAT CAT GGA AAG ATT ATT AAG TCA GTG AAT GCT GAA TCT GCC
2504  1008
2505  Gly Thr Asp His Gly Lys Ile Ile Lys Ser Val Asn Ala Glu Ser Ala
2506                325                   330                   335
2507
2508  GAT TCA GCG GAT AAA GTC ACC TCC GTA GTC ATC GAG GAG ATC GAT GTC
2509  1056
2510  Asp Ser Ala Asp Lys Val Thr Ser Val Val Ile Glu Glu Ile Asp Val
2511                340                   345                   350
2512
2513  CTG ACC AAG AGT GAA CCC ATA CGC AAT CTG GAG ATA GTC AGA ACC ATG
2514  1104
2515  Leu Thr Lys Ser Glu Pro Ile Arg Asn Leu Glu Ile Val Arg Thr Met
2516                355                   360                   365
2517
2518  CAG TAC GAT CAA CCC AAA GAT GGC AGC TAC GAC GAT GGT AAA TTA ATC
2519  1152
2520  Gln Tyr Asp Gln Pro Lys Asp Gly Ser Tyr Asp Asp Gly Lys Leu Ile
2521                370                   375                   380
2522
2523  ATT GTG ACG GAC AGT CAG GTG GTA GCC ATA CAA TTG CAT CGT TGT CAC
2524  1200
2525  Ile Val Thr Asp Ser Gln Val Val Ala Ile Gln Leu His Arg Cys His
2526  385                   390                   395                   400
2527
2528  AAT GAC AAA ATC ACC AGC TGC AGC GAG TGC GTC GCA TTG CAG GAT CCG
2529  1248
2530  Asn Asp Lys Ile Thr Ser Cys Ser Glu Cys Val Ala Leu Gln Asp Pro
2531                405                   410                   415
2532
2533  TAC TGC GCC TGG GAC AAA ATC GCT GGC AAG TGC CGT TCC CAC GGC GCT
2534  1296
2535  Tyr Cys Ala Trp Asp Lys Ile Ala Gly Lys Cys Arg Ser His Gly Ala
2536                420                   425                   430
2537
2538  CCC CGA TGG CTA GAG GAG AAC TAT TTC TAC CAG AAT GTG GCC ACT GGC
2539  1344
2540  Pro Arg Trp Leu Glu Glu Asn Tyr Phe Tyr Gln Asn Val Ala Thr Gly
2541                435                   440                   445
2542
2543  CAG CAT GCG GCC TGC CCC TCA GGC AAA ATC AAT TCA AAG GAT GCC AAC
2544  1392
2545  Gln His Ala Ala Cys Pro Ser Gly Lys Ile Asn Ser Lys Asp Ala Asn
2546                450                   455                   460
2547
2548  GCT GGG GAG CAG AAG GGC TTC CGC AAC GAC ATG GAC TTA TTG GAT TCG
2549  1440
2550  Ala Gly Glu Gln Lys Gly Phe Arg Asn Asp Met Asp Leu Leu Asp Ser

```

# **RAW SEQUENCE LISTING** **PATENT APPLICATION US/08/121,713**

DATE: 12/17/93  
 TIME: 19:28:42

**INPUT SET: S7086.raw**

```

2551      465              470              475              480
2552
2553      CGA CGC CAG AGC AAG GAT CAG GAA ATA ATC GAC AAT ATT GAT AAG AAC
2554      1488
2555      Arg Arg Gln Ser Lys Asp Gln Glu Ile Ile Asp Asn Ile Asp Lys Asn
2556              485              490              495
2557
2558      TTT GAA GAT ATA ATC AAC GCC CAG TAC ACT GTG GAG ACC CTC GTG ATG
2559      1536
2560      Phe Glu Asp Ile Ile Asn Ala Gln Tyr Thr Val Glu Thr Leu Val Met
2561              500              505              510
2562
2563      GCC GTT CTG GCC GGT TCG ATC TTT TCG CTG CTG GTC GGC TTC TTT ACA
2564      1584
2565      Ala Val Leu Ala Gly Ser Ile Phe Ser Leu Leu Val Gly Phe Phe Thr
2566              515              520              525
2567
2568      GGC TAC TTC TGC GGT CGC CGT TGT CAC AAG GAC GAG GAT GAT AAT CTG
2569      1632
2570      Gly Tyr Phe Cys Gly Arg Arg Cys His Lys Asp Glu Asp Asp Asn Leu
2571              530              535              540
2572
2573      CCG TAT CCG GAT ACG GAG TAC GAG TAC TTC GAG CAG CGA CAG AAT GTC
2574      1680
2575      Pro Tyr Pro Asp Thr Glu Tyr Glu Tyr Phe Glu Gln Arg Gln Asn Val
2576      545              550              555              560
2577
2578      AAT AGC TTC CCC TCG TCC TGT CGC ATC CAG CAG GAG CCC AAG CTG CTG
2579      1728
2580      Asn Ser Phe Pro Ser Ser Cys Arg Ile Gln Gln Glu Pro Lys Leu Leu
2581              565              570              575
2582
2583      CCC CAA GTG GAG GAG GTG ACG TAT GCG GAC GCA GTG CTC CTG CCA CAG
2584      1776
2585      Pro Gln Val Glu Glu Val Thr Tyr Ala Asp Ala Val Leu Leu Pro Gln
2586              580              585              590
2587
2588      CCT CCG CCG CCC AAT AAG ATG CAC TCG CCG AAG AAC ACG CTG CGT AAG
2589      1824
2590      Pro Pro Pro Pro Asn Lys Met His Ser Pro Lys Asn Thr Leu Arg Lys
2591              595              600              605
2592
2593      CCC CCG ATG CAC CAG ATG CAC CAG GGT CCC AAC TCG GAG ACC CTC TTC
2594      1872
2595      Pro Pro Met His Gln Met His Gln Gly Pro Asn Ser Glu Thr Leu Phe
2596              610              615              620
2597
2598      CAG TTC CAC GTG ACG GCT ACA ACA CCC AGC AGT CGT ATC GTG GTC GCG
2599      1920
2600      Gln Phe His Val Thr Ala Thr Thr Pro Ser Ser Arg Ile Val Val Ala
2601      625              630              635              640

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RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/121,713DATE: 12/17/93  
TIME: 19:28:49

INPUT SET: S7086.raw

2602  
2603 ACA ACT TCG GAA CAC TGC GTT CCC ACC AGG TGATGGGCGA CAATTACAGG  
2604 1970  
2605 Thr Thr Ser Glu His Cys Val Pro Thr Arg  
2606 645 650  
2607  
2608 CGCGGCGATG GCTTTTCCAC CACCCGCAGC GTCAAGAAGG TTTACCTTTG AGACGGGAGT  
2609 2030  
2610  
2611 GGGGCGGCTG AAACCAGTCA GGGACTAATT ACCCAAATA TGGCTGTAAA CAACACAAAC  
2612 2090  
2613  
2614 ACACGTAACA GAAGTCTTGG TCGCGCAAGA AGACAGCCGC CCCGTCATGG CATTGTAACT  
2615 2150  
2616  
2617 CAACACCGCT CGAATAGCCC CCAGCAGCAG CAGCAGCAGT CGCAGCAGCC GCACTCCAGT  
2618 2210  
2619  
2620 TCGGGCTCCT CGCCCCTAAT GTCCAACAGC AGCAGCAGTC CGGCTCCGCC CTCCAGCAGT  
2621 2270  
2622  
2623 CCCAGTCCGC AGGAGAGCCC CAAGAACTGC AGCTACATCT ACCGTGATTG ATTGATATGC  
2624 2330  
2625  
2626 AACACCAAAT CGATGCCACT CATCCAGGCC CAGTCCACGC ACGCCCAGCC ACACTCACAC  
2627 2390  
2628  
2629 CCGCACCCGC ACCCGCTTCC GCCACCCGGT CCGACCACGC CCCCAGCACA GCCACGCGCC  
2630 2450  
2631  
2632 AGAAGTCCAA TGATCGGCAG GACATATGCC AAGTCCATGC CCGTGACACC AGTTCAACCG  
2633 2510  
2634  
2635 CAATCGCCGC TGGCTGAGAC GCCCTCCTAT GAGCTCTACG AACGCCACTC GGATGCGGCC  
2636 2570  
2637  
2638 ACCTTCCACT TTGGGGATGA GGACGATGAC GATGATGATG AGCACGACCA GGAGGACACC  
2639 2630  
2640  
2641 TCATCGCTGG CCATGATCAC ACCGCCGCCG CCCTACGACA CTCCGCATCT GATTGCATCG  
2642 2690  
2643  
2644 CCACCGCTGC CGCCGCCTCG TAGATTTTCGC TTTGGCAACA GGGAGCTGTT CAGCATGAGT  
2645 2750  
2646  
2647 CCAGCCGGAG GTGGAACCAC GCCCACC GCCCAGGCC AACGCGGCAG CAGCGCCATC  
2648 2810  
2649  
2650 ACGCCCACAA AGTTGAGTGC GGCGGCAGCG GCCATGTTTG CCGCACCCCA AATGGCCACC  
2651 2870  
2652

RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/121,713DATE: 12/17/93  
TIME: 19:28:55

INPUT SET: S7086.raw

2653 CAACTCAACC GGAAGTGGGC TCATTTGCAA AGGAAGCGGC GCAGGCGCAA CAGCAGCTCC  
2654 2930  
2655  
2656 GGCGATTCTA AGGAGCTCGA CAAACTGGTC CTGCAATCGG TCGACTGGGA TGAGAATGAG  
2657 2990  
2658  
2659 ATGTACTAGA ACGCAAACCA ACAATGAGAT AGCAGAAACA CTTTGATTCTG GAATTTATAC  
2660 3050  
2661  
2662 ACCTTTGCAT ATTTTGAATA TGA CTTC AAT TTTAAAATGC GTAATTATGT TCTTATTTTT  
2663 3110  
2664  
2665 TAAAGAACGC TTTAGAGAAG TTTTCTGCTA CCTTAAATAG TACACACAAC TCATATCTAA  
2666 3170  
2667  
2668 CGTGGCGCTG CGATATAGGA ATAACCACTC CCCCTTCCCT TAAACTTAAA GTAGCAATCG  
2669 3230  
2670  
2671 AAAAGATCAT TCATTAGCGA CAGAAACTGG ATGGGGATTT ACTTACACAC AAAAAGCCAG  
2672 3290  
2673  
2674 AGAAGTTATA CACGAAGTTT ATAGTTATAT AGCCTTTATA CATACTCCCC GATCTGCTAA  
2675 3350  
2676  
2677 GTATACACAA GCAAGCATAA CATAACATAC GTATATATGA CTCTATATAT ACCAATAGAT  
2678 3410  
2679  
2680 TTCATAGACG ATTCACATGG ATCGGCTACG CTAAATTAGA GCTGCAAAAT GATATTGTTA  
2681 3470  
2682  
2683 ATTACGATTA GAGAAAAAAA AAAAGGAATT CGATATCAAG CKTATCGATA CCNTCGACCT  
2684 3530  
2685  
2686 CGNNNNNGGG GCCCGGTACC CAATTGCCCC  
2687 3560  
2688  
2689

(2) INFORMATION FOR SEQ ID NO:60:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 650 amino acids

(B) TYPE: amino acid

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:60:

2700  
2701 Glu Asp Asp Cys Gln Asn Tyr Ile Arg Ile Met Val Val Pro Ser Pro  
2702 1 5 10 15  
2703

**INPUT SET: S7086.raw**

2704	Gly	Arg	Leu	Phe	Val	Cys	Gly	Thr	Asn	Ser	Phe	Arg	Pro	Met	Cys	Asn
2705				20					25					30		
2706																
2707	Thr	Tyr	Ile	Ile	Ser	Asp	Ser	Asn	Tyr	Thr	Leu	Glu	Ala	Thr	Lys	Asn
2708			35					40					45			
2709																
2710	Gly	Gln	Ala	Val	Cys	Pro	Tyr	Asp	Pro	Arg	His	Asn	Ser	Thr	Ser	Val
2711		50					55					60				
2712																
2713	Leu	Ala	Asp	Asn	Glu	Leu	Tyr	Ser	Gly	Thr	Val	Ala	Asp	Phe	Ser	Gly
2714	65					70					75					80
2715																
2716	Ser	Asp	Pro	Ile	Ile	Tyr	Arg	Glu	Pro	Leu	Gln	Thr	Glu	Gln	Tyr	Asp
2717					85					90					95	
2718																
2719	Ser	Leu	Ser	Leu	Asn	Ala	Pro	Asn	Phe	Val	Ser	Ser	Phe	Thr	Gln	Gly
2720				100					105					110		
2721																
2722	Asp	Phe	Val	Tyr	Phe	Phe	Phe	Arg	Glu	Thr	Ala	Val	Glu	Phe	Ile	Asn
2723			115					120					125			
2724																
2725	Cys	Gly	Lys	Ala	Ile	Tyr	Ser	Arg	Val	Ala	Arg	Val	Cys	Lys	Trp	Asp
2726		130					135					140				
2727																
2728	Lys	Gly	Gly	Pro	His	Arg	Phe	Arg	Asn	Arg	Trp	Thr	Ser	Phe	Leu	Lys
2729	145					150					155					160
2730																
2731	Ser	Arg	Leu	Asn	Cys	Ser	Ile	Pro	Gly	Asp	Tyr	Pro	Phe	Tyr	Phe	Asn
2732					165					170					175	
2733																
2734	Glu	Ile	Gln	Ser	Ala	Ser	Asn	Leu	Val	Glu	Gly	Gln	Tyr	Gly	Ser	Met
2735				180					185					190		
2736																
2737	Ser	Ser	Lys	Leu	Ile	Tyr	Gly	Val	Phe	Asn	Thr	Pro	Ser	Asn	Ser	Ile
2738			195					200					205			
2739																
2740	Pro	Gly	Ser	Ala	Val	Cys	Ala	Phe	Ala	Leu	Gln	Asp	Ile	Ala	Asp	Thr
2741		210					215					220				
2742																
2743	Phe	Glu	Gly	Gln	Phe	Lys	Glu	Gln	Thr	Gly	Ile	Asn	Ser	Asn	Trp	Leu
2744	225					230					235					240
2745																
2746	Pro	Val	Asn	Asn	Ala	Lys	Val	Pro	Asp	Pro	Arg	Pro	Gly	Ser	Cys	His
2747					245					250					2	

DATE: 12/17/93  
TIME: 19:29:08

**INPUT SET: S7086.raw**

2755	Leu	Val	Arg	Thr	Ser	Thr	Ile	Tyr	Arg	Phe	Thr	Gln	Ile	Ala	Val	Asp
2756	290						295					300				
2757																
2758	Ala	Gln	Ile	Lys	Thr	Pro	Gly	Gly	Lys	Thr	Tyr	Asp	Val	Ile	Phe	Val
2759	305					310					315					320
2760																
2761	Gly	Thr	Asp	His	Gly	Lys	Ile	Ile	Lys	Ser	Val	Asn	Ala	Glu	Ser	Ala
2762					325					330					335	
2763																
2764	Asp	Ser	Ala	Asp	Lys	Val	Thr	Ser	Val	Val	Ile	Glu	Glu	Ile	Asp	Val
2765				340					345					350		
2766																
2767	Leu	Thr	Lys	Ser	Glu	Pro	Ile	Arg	Asn	Leu	Glu	Ile	Val	Arg	Thr	Met
2768			355					360					365			
2769																
2770	Gln	Tyr	Asp	Gln	Pro	Lys	Asp	Gly	Ser	Tyr	Asp	Asp	Gly	Lys	Leu	Ile
2771	370						375					380				
2772																
2773	Ile	Val	Thr	Asp	Ser	Gln	Val	Val	Ala	Ile	Gln	Leu	His	Arg	Cys	His
2774	385					390					395					400
2775																
2776	Asn	Asp	Lys	Ile	Thr	Ser	Cys	Ser	Glu	Cys	Val	Ala	Leu	Gln	Asp	Pro
2777					405					410					415	
2778																
2779	Tyr	Cys	Ala	Trp	Asp	Lys	Ile	Ala	Gly	Lys	Cys	Arg	Ser	His	Gly	Ala
2780				420					425					430		
2781																
2782	Pro	Arg	Trp	Leu	Glu	Glu	Asn	Tyr	Phe	Tyr	Gln	Asn	Val	Ala	Thr	Gly
2783			435					440					445			
2784																
2785	Gln	His	Ala	Ala	Cys	Pro	Ser	Gly	Lys	Ile	Asn	Ser	Lys	Asp	Ala	Asn
2786		450					455					460				
2787																
2788	Ala	Gly	Glu	Gln	Lys	Gly	Phe	Arg	Asn	Asp	Met	Asp	Leu	Leu	Asp	Ser
2789	465					470					475					480
2790																
2791	Arg	Arg	Gln	Ser	Lys	Asp	Gln	Glu	Ile	Ile	Asp	Asn	Ile	Asp	Lys	Asn
2792					485						490				495	
2793																
2794	Phe	Glu	Asp	Ile	Ile	Asn	Ala	Gln	Tyr	Thr	Val	Glu	Thr	Leu	Val	Met
2795				500					505					510		
2796																
2797	Ala	Val	Leu	Ala	Gly	Ser	Ile	Phe	Ser	Leu	Leu	Val	Gly	Phe	Phe	Thr
2798			515					520		</						

**RAW SEQUENCE LISTING**  
**PATENT APPLICATION US/08/121,713**DATE: 12/17/93  
TIME: 19:29:15**INPUT SET: S7086.raw**

2806 Asn Ser Phe Pro Ser Ser Cys Arg Ile Gln Gln Glu Pro Lys Leu Leu  
2807 565 570 575  
2808  
2809 Pro Gln Val Glu Glu Val Thr Tyr Ala Asp Ala Val Leu Leu Pro Gln  
2810 580 585 590  
2811  
2812 Pro Pro Pro Pro Asn Lys Met His Ser Pro Lys Asn Thr Leu Arg Lys  
2813 595 600 605  
2814  
2815 Pro Pro Met His Gln Met His Gln Gly Pro Asn Ser Glu Thr Leu Phe  
2816 610 615 620  
2817  
2818 Gln Phe His Val Thr Ala Thr Thr Pro Ser Ser Arg Ile Val Val Ala  
2819 625 630 635 640  
2820  
2821 Thr Thr Ser Glu His Cys Val Pro Thr Arg  
2822 645 650  
2823  
2824  
2825 (2) INFORMATION FOR SEQ ID NO:61:  
2826  
2827 (i) SEQUENCE CHARACTERISTICS:  
--> 2828 (A) LENGTH: 2670 base pairs  
2829 (B) TYPE: nucleic acid  
2830 (C) STRANDEDNESS: double  
2831 (D) TOPOLOGY: linear  
2832  
2833 (ii) MOLECULE TYPE: cDNA  
2834  
2835  
2836 (ix) FEATURE:  
2837 (A) NAME/KEY: CDS  
2838 (B) LOCATION: 268..2439  
2839  
2840  
2841 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:61:  
2842  
2843 GAAAATCGAA CWCCGAATTG AATGAACWGC AAAACGCCAA TTAGATAGTT GCAAGCCTAA  
2844 60  
2845  
2846 TGCATTTCAG AKATTTNMMC GATGCGAAAC AAGTTCCGCC ACGAAAGTGA ACAGTGGTAA  
2847 120  
2848  
2849 AATGCCCAAG AATCTCGAGC GGAAACACCA AACACAAAAG AACAAGCAAC CGCCTCTCAC  
2850 180  
2851  
2852 TCGCTCTTGC ACTTTAATCC AATTGAGGTT GGTGGGGTCG CATTCGCCCC CCGGTCGACC  
2853 240  
2854  
2855 ACCCCTCTCG CTCGCACCGC CCTCGCA ATG TCT CTT CTA CAG CTA TCG CCG CTC  
2856 294



**RAW SEQUENCE LISTING**  
**PATENT APPLICATION US/08/121,713**

 DATE: 12/17/93  
 TIME: 19:29:22

**INPUT SET: S7086.raw**

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2857                               Met Ser Leu Leu Gln Leu Ser Pro Leu
2858                               1           5
2859   CTC GCA CTC CTG CTA CTC CTC TGC AGT AGT GTG AGC GAG ACG GCT GCG
2860   342
2861   Leu Ala Leu Leu Leu Leu Leu Cys Ser Ser Val Ser Glu Thr Ala Ala
2862   10           15           20           25
2863
2864   GAC TAC GAG AAC ACC TGG AAC TTC TAC TAC GAG CGT CCC TGT TGC ACT
2865   390
2866   Asp Tyr Glu Asn Thr Trp Asn Phe Tyr Tyr Glu Arg Pro Cys Cys Thr
2867   30           35           40
2868
2869   GGA AAC GAT CAG GGG AAC AAC AAT TAC GGA AAA CAC GGC GCA GAT CAT
2870   438
2871   Gly Asn Asp Gln Gly Asn Asn Asn Tyr Gly Lys His Gly Ala Asp His
2872   45           50           55
2873
2874   GTG CGG GAG TTC AAC TGC GGC AAG CTG TAC TAT CGT ACA TTC CAT ATG
2875   486
2876   Val Arg Glu Phe Asn Cys Gly Lys Leu Tyr Tyr Arg Thr Phe His Met
2877   60           65           70
2878
2879   AAC GAA GAT CGA GAT ACG CTC TAT GTG GGA GCC ATG GAT CGC GTA TTC
2880   534
2881   Asn Glu Asp Arg Asp Thr Leu Tyr Val Gly Ala Met Asp Arg Val Phe
2882   75           80           85
2883
2884   CGT GTG AAC CTG CAG AAT ATC TCC TCA TCC AAT TGT AAT CGG GAT GCG
2885   582
2886   Arg Val Asn Leu Gln Asn Ile Ser Ser Ser Asn Cys Asn Arg Asp Ala
2887   90           95           100           105
2888
2889   ATC AAC TTG GAG CCA ACA CGG GAT GAT GTG GTT AGC TGC GTC TCC AAA
2890   630
2891   Ile Asn Leu Glu Pro Thr Arg Asp Asp Val Val Ser Cys Val Ser Lys
2892   110           115           120
2893
2894   GGC AAA AGT CAG ATC TTC GAC TGC AAG AAC CAT GTG CGT GTC ATC CAG
2895   678
2896   Gly Lys Ser Gln Ile Phe Asp Cys Lys Asn His Val Arg Val Ile Gln
2897   125           130           135
2898
2899   TCA ATG GAC CAG GGG GAT AGG CTC TAT GTA TGC GGC ACC AAC GCC CAC
2900   726
2901   Ser Met Asp Gln Gly Asp Arg Leu Tyr Val Cys Gly Thr Asn Ala His
2902   140           145           150
2903
2904   AAT CCC AAG GAT TAT GTT ATC TAT GCG AAT CTA ACC CAC CTG CCG CGC
2905   774
2906   Asn Pro Lys Asp Tyr Val Ile Tyr Ala Asn Leu Thr His Leu Pro Arg
2907   155           160           165

```

# RAW SEQUENCE LISTING PATENT APPLICATION US/08/121,713

DATE: 12/17/93  
TIME: 19:29:29

INPUT SET: S7086.raw

```

2908
2909   TCG GAA TAT GTG ATT GGC GTG GGT CTG GGC ATT GCC AAG TGC CCC TAC
2910   822
2911   Ser Glu Tyr Val Ile Gly Val Gly Leu Gly Ile Ala Lys Cys Pro Tyr
2912   170                      175                      180                      185
2913
2914   GAT CCC CTC GAC AAC TCA ACT GCG ATT TAT GTG GAG AAT GGC AAT CCG
2915   870
2916   Asp Pro Leu Asp Asn Ser Thr Ala Ile Tyr Val Glu Asn Gly Asn Pro
2917   190                      195                      200
2918
2919   GGT GGT CTG CCC GGT TTG TAC TCC GGC ACC AAT GCG GAG TTC ACC AAG
2920   918
2921   Gly Gly Leu Pro Gly Leu Tyr Ser Gly Thr Asn Ala Glu Phe Thr Lys
2922   205                      210                      215
2923
2924   GCG GAT ACG GTT ATT TTC CGC ACT GAT CTG TAT AAT ACT TCG GCT AAA
2925   966
2926   Ala Asp Thr Val Ile Phe Arg Thr Asp Leu Tyr Asn Thr Ser Ala Lys
2927   220                      225                      230
2928
2929   CGT TTG GAA TAT AAA TTC AAG AGG ACT CTG AAA TAC GAC TCC AAG TGG
2930   1014
2931   Arg Leu Glu Tyr Lys Phe Lys Arg Thr Leu Lys Tyr Asp Ser Lys Trp
2932
2933   235                      240                      245
2934
2935   TTG GAC AAA CCA AAC TTT GTC GGC TCC TTT GAT ATT GGG GAG TAC GTG
2936   1062
2937   Leu Asp Lys Pro Asn Phe Val Gly Ser Phe Asp Ile Gly Glu Tyr Val
2938   250                      255                      260                      265
2939
2940   TAT TTC TTT TTC CGT GAA ACC GCC GTG GAA TAC ATC AAC TGC GGC AAG
2941   1110
2942   Tyr Phe Phe Phe Arg Glu Thr Ala Val Glu Tyr Ile Asn Cys Gly Lys
2943   270                      275                      280
2944
2945   GCT GTC TAT TCG CGC ATC GCA CGG GTG TGC AAG AAG GAT GTG GGT GGA
2946   1158
2947   Ala Val Tyr Ser Arg Ile Ala Arg Val Cys Lys Lys Asp Val Gly Gly
2948   285                      290                      295
2949
2950   AAG AAT CTG CTG GCC CAC AAC TGG GCC ACC TAC CTG AAG GCC AGA CTC
2951   1206
2952   Lys Asn Leu Leu Ala His Asn Trp Ala Thr Tyr Leu Lys Ala Arg Leu
2953   300                      305                      310
2954
2955   AAC TGC AGC ATC TCC GGC GAA TTT CCG TTC TAT TTC AAC GAG ATC CAA
2956   1254
2957   Asn Cys Ser Ile Ser Gly Glu Phe Pro Phe Tyr Phe Asn Glu Ile Gln
2958   315                      320                      325

```

**INPUT SET: S7086.raw**

[illegible]

# RAW SEQUENCE LISTING PATENT APPLICATION US/08/121,713

DATE: 12/17/93  
TIME: 19:29:43

INPUT SET: S7086.raw

```

3010 GAG GTG GCT CCA AAC GAG GCC ATC CAA GTG ATG GAA ATC AGC CAG ACA
3011 1782
3012 Glu Val Ala Pro Asn Glu Ala Ile Gln Val Met Glu Ile Ser Gln Thr
3013 490 495 500 505
3014
3015 CGT AAG AGC CTC TAC ATT GGC ACC GAT CAT CGC ATC AAG CAA ATC GAC
3016 1830
3017 Arg Lys Ser Leu Tyr Ile Gly Thr Asp His Arg Ile Lys Gln Ile Asp
3018 510 515 520
3019
3020 CTG GCC ATG TGC AAT CGC CGT TAC GAC AAC TGC TTC CGC TGC GTC CGT
3021 1878
3022 Leu Ala Met Cys Asn Arg Arg Tyr Asp Asn Cys Phe Arg Cys Val Arg
3023 525 530 535
3024
3025 GAT CCC TAC TGC GGC TGG GAT AAG GAG GCC AAT ACG TGC CGA CCG TAC
3026 1926
3027 Asp Pro Tyr Cys Gly Trp Asp Lys Glu Ala Asn Thr Cys Arg Pro Tyr
3028 540 545 550
3029
3030 GAG CTG GAT TTA CTG CAG GAT GTG GCC AAT GAA ACG AGT GAC ATT TGC
3031 1974
3032 Glu Leu Asp Leu Leu Gln Asp Val Ala Asn Glu Thr Ser Asp Ile Cys
3033 555 560 565
3034
3035 GAT TCG AGT GTG CTG AAA AAG AAG ATT GTG GTG ACC TAT GGC CAG AGT
3036 2028
3037 Asp Ser Ser Val Leu Lys Lys Lys Ile Val Val Thr Tyr Gly Gln Ser
3038 570 575 580 585
3039
3040 GTA CAT CTG GGC TGT TTC GTC AAA ATA CCC GAA GTG CTG AAG AAT GAG
3041 2070
3042 Val His Leu Gly Cys Phe Val Lys Ile Pro Glu Val Leu Lys Asn Glu
3043 590 595 600
3044
3045 CAA GTG ACC TGG TAT CAT CAC TCC AAG GAC AAG GGA CGC TAC GAG ATT
3046 2118
3047 Gln Val Thr Trp Tyr His His Ser Lys Asp Lys Gly Arg Tyr Glu Ile
3048 605 610 615
3049
3050 CGT TAC TCG CCG ACC AAA TAC ATT GAG ACC ACC GAA CGT GGC CTG GTT
3051 2166
3052 Arg Tyr Ser Pro Thr Lys Tyr Ile Glu Thr Thr Glu Arg Gly Leu Val
3053 620 625 630
3054
3055 GTG GTT TCC GTG AAC GAA GCC GAT GGT GGT CGG TAC GAT TGC CAT TTG
3056 2214
3057 Val Val Ser Val Asn Glu Ala Asp Gly Gly Arg Tyr Asp Cys His Leu
3058 635 640 645
3059
3060 GGC GGC TCG CTT TTG TGC AGC TAC AAC ATT ACA GTG GAT GCC CAC AGA

```

RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/121,713DATE: 12/17/93  
TIME: 19:29:50

INPUT SET: S7086.raw

3061 2262  
3062 Gly Gly Ser Leu Leu Cys Ser Tyr Asn Ile Thr Val Asp Ala His Arg  
3063 650 655 660 665  
3064  
3065 TGC ACT CCG CCG AAC AAG AGT AAT GAC TAT CAG AAA ATC TAC TCG GAC  
3066 2310  
3067 Cys Thr Pro Pro Asn Lys Ser Asn Asp Tyr Gln Lys Ile Tyr Ser Asp  
3068 670 675 680  
3069  
3070 TGG TGC CAC GAG TTC GAG AAA TAC AAA ACA GCA ATG AAG TCC TGG GAA  
3071 2358  
3072 Trp Cys His Glu Phe Glu Lys Tyr Lys Thr Ala Met Lys Ser Trp Glu  
3073 685 690 695  
3074  
3075 AAG AAG CAA GGC CAA TGC TCG ACA CGG CAG AAC TTC AGC TGC AAT CAG  
3076 2406  
3077 Lys Lys Gln Gly Gln Cys Ser Thr Arg Gln Asn Phe Ser Cys Asn Gln  
3078 700 705 710  
3079  
3080 CAT CCG AAT GAG ATT TTC CGT AAG CCC AAT GTC TGATATCACG AAGAGAGTAT  
3081 2459  
3082 His Pro Asn Glu Ile Phe Arg Lys Pro Asn Val  
3083 715 720  
3084  
3085 CGCCCTCAAA ATGCCGTCAT CGTCGTCCAA TCAATTTTAG TTAATCGAAA GCGAAGAGGA  
3086 2519  
3087  
3088 TAATAACAGT GCGGAATAGA AAGCCCAGGA CGAGAAGAAC TCATTATAAT CATTATTATC  
3089 2579  
3090  
3091 AGCGACATCA TCATAGACAT ACTTTCTTCA GCAATGAACA GAAAACTCTT CCTAAAGGAT  
3092 2636  
3093  
3094 TATGCATTTA CCGAAGCATT TACAATGCAT C  
3095 2670  
3096  
3097  
3098 (2) INFORMATION FOR SEQ ID NO:62:  
3099  
3100 (i) SEQUENCE CHARACTERISTICS:  
3101 (A) LENGTH: 724 amino acids  
3102 (B) TYPE: amino acid  
3103 (D) TOPOLOGY: linear  
3104  
3105 (ii) MOLECULE TYPE: protein  
3106  
3107 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:62:  
3108  
3109 Met Ser Leu Leu Gln Leu Ser Pro Leu Leu Ala Leu Leu Leu Leu Leu  
3110 1 5 10 15  
3111

# RAW SEQUENCE LISTING PATENT APPLICATION US/08/121,713

DATE: 12/17/93  
TIME: 19:29:57

INPUT SET: S7086.raw

```

3112 Cys Ser Ser Val Ser Glu Thr Ala Ala Asp Tyr Glu Asn Thr Trp Asn
3113          20          25          30
3114
3115 Phe Tyr Tyr Glu Arg Pro Cys Cys Thr Gly Asn Asp Gln Gly Asn Asn
3116          35          40          45
3117
3118 Asn Tyr Gly Lys His Gly Ala Asp His Val Arg Glu Phe Asn Cys Gly
3119          50          55          60
3120
3121 Lys Leu Tyr Tyr Arg Thr Phe His Met Asn Glu Asp Arg Asp Thr Leu
3122          65          70          75          80
3123
3124 Tyr Val Gly Ala Met Asp Arg Val Phe Arg Val Asn Leu Gln Asn Ile
3125          85          90          95
3126
3127 Ser Ser Ser Asn Cys Asn Arg Asp Ala Ile Asn Leu Glu Pro Thr Arg
3128          100          105          110
3129
3130 Asp Asp Val Val Ser Cys Val Ser Lys Gly Lys Ser Gln Ile Phe Asp
3131          115          120          125
3132
3133 Cys Lys Asn His Val Arg Val Ile Gln Ser Met Asp Gln Gly Asp Arg
3134          130          135          140
3135
3136 Leu Tyr Val Cys Gly Thr Asn Ala His Asn Pro Lys Asp Tyr Val Ile
3137          145          150          155          160
3138
3139 Tyr Ala Asn Leu Thr His Leu Pro Arg Ser Glu Tyr Val Ile Gly Val
3140          165          170          175
3141
3142 Gly Leu Gly Ile Ala Lys Cys Pro Tyr Asp Pro Leu Asp Asn Ser Thr
3143          180          185          190
3144
3145 Ala Ile Tyr Val Glu Asn Gly Asn Pro Gly Gly Leu Pro Gly Leu Tyr
3146          195          200          205
3147
3148 Ser Gly Thr Asn Ala Glu Phe Thr Lys Ala Asp Thr Val Ile Phe Arg
3149          210          215          220
3150
3151 Thr Asp Leu Tyr Asn Thr Ser Ala Lys Arg Leu Glu Tyr Lys Phe Lys
3152          225          230          235          240
3153
3154 Arg Thr Leu Lys Tyr Asp Ser Lys Trp Leu Asp Lys Pro Asn Phe Val
3155          245          250          255
3156
3157 Gly Ser Phe Asp Ile Gly Glu Tyr Val Tyr Phe Phe Phe Arg Glu Thr
3158          260          265          270
3159
3160 Ala Val Glu Tyr Ile Asn Cys Gly Lys Ala Val Tyr Ser Arg Ile Ala
3161          275          280          285
3162

```

DATE: 12/17/93  
TIME: 19:30:03

**INPUT SET: S7086.raw**

3163	Arg	Val	Cys	Lys	Lys	Asp	Val	Gly	Gly	Lys	Asn	Leu	Leu	Ala	His	Asn
3164	290						295					300				
3165																
3166	Trp	Ala	Thr	Tyr	Leu	Lys	Ala	Arg	Leu	Asn	Cys	Ser	Ile	Ser	Gly	Glu
3167	305					310					315					320
3168																
3169	Phe	Pro	Phe	Tyr	Phe	Asn	Glu	Ile	Gln	Ser	Val	Tyr	Gln	Leu	Pro	Ser
3170					325					330					335	
3171																
3172	Asp	Lys	Ser	Arg	Phe	Phe	Ala	Thr	Phe	Thr	Thr	Ser	Thr	Asn	Gly	Leu
3173				340					345					350		
3174																
3175	Ile	Gly	Ser	Ala	Val	Cys	Ser	Phe	His	Ile	Asn	Glu	Ile	Gln	Ala	Ala
3176			355					360					365			
3177																
3178	Phe	Asn	Gly	Lys	Phe	Lys	Glu	Gln	Ser	Ser	Ser	Asn	Ser	Ala	Trp	Leu
3179		370					375					380				
3180																
3181	Pro	Val	Leu	Asn	Ser	Arg	Val	Pro	Glu	Pro	Arg	Pro	Gly	Thr	Cys	Val
3182	385					390					395					400
3183																
3184	Asn	Asp	Thr	Ser	Asn	Leu	Pro	Asp	Thr	Val	Leu	Asn	Phe	Ile	Arg	Ser
3185					405					410					415	
3186																
3187	His	Pro	Leu	Met	Asp	Lys	Ala	Val	Asn	His	Glu	His	Asn	Asn	Pro	Val
3188				420					425					430		
3189																
3190	Tyr	Tyr	Lys	Arg	Asp	Leu	Val	Phe	Thr	Lys	Leu	Val	Val	Asp	Lys	Ile
3191			435					440					445			
3192																
3193	Arg	Ile	Asp	Ile	Leu	Asn	Gln	Glu	Tyr	Ile	Val	Tyr	Tyr	Val	Gly	Thr
3194		450					455					460				
3195																
3196	Asn	Leu	Gly	Arg	Ile	Tyr	Lys	Ile	Val	Gln	Tyr	Tyr	Arg	Asn	Gly	Glu
3197	465					470					475					480
3198																
3199	Ser	Leu	Ser	Lys	Leu	Leu	Asp	Ile	Phe	Glu	Val	Ala	Pro	Asn	Glu	Ala
3200					485					490					495	
3201																
3202	Ile	Gln	Val	Met	Glu	Ile	Ser	Gln	Thr	Arg	Lys	Ser	Leu	Tyr	Ile	Gly
3203				500					505					510		
3204																
3205	Thr	Asp	His	Arg	Ile	Lys	Gln	Ile	Asp	Leu	Ala	Met	Cys	Asn	Arg	Arg
3206			515					520								

RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/121,713DATE: 12/17/93  
TIME: 19:30:10

INPUT SET: S7086.raw

```
3214 Val Ala Asn Glu Thr Ser Asp Ile Cys Asp Ser Ser Val Leu Lys Lys
3215                               565                               570                               575
3216
3217 Lys Ile Val Val Thr Tyr Gly Gln Ser Val His Leu Gly Cys Phe Val
3218                               580                               585                               590
3219
3220 Lys Ile Pro Glu Val Leu Lys Asn Glu Gln Val Thr Trp Tyr His His
3221                               595                               600                               605
3222
3223 Ser Lys Asp Lys Gly Arg Tyr Glu Ile Arg Tyr Ser Pro Thr Lys Tyr
3224                               610                               615                               620
3225
3226 Ile Glu Thr Thr Glu Arg Gly Leu Val Val Val Ser Val Asn Glu Ala
3227                               625                               630                               635                               640
3228
3229 Asp Gly Gly Arg Tyr Asp Cys His Leu Gly Gly Ser Leu Leu Cys Ser
3230                               645                               650                               655
3231
3232 Tyr Asn Ile Thr Val Asp Ala His Arg Cys Thr Pro Pro Asn Lys Ser
3233                               660                               665                               670
3234
3235 Asn Asp Tyr Gln Lys Ile Tyr Ser Asp Trp Cys His Glu Phe Glu Lys
3236                               675                               680                               685
3237
3238 Tyr Lys Thr Ala Met Lys Ser Trp Glu Lys Lys Gln Gly Gln Cys Ser
3239                               690                               695                               700
3240
3241 Thr Arg Gln Asn Phe Ser Cys Asn Gln His Pro Asn Glu Ile Phe Arg
3242                               705                               710                               715                               720
3243
3244 Lys Pro Asn Val
3245
3246
```

(2) INFORMATION FOR SEQ ID NO:63:

(i) SEQUENCE CHARACTERISTICS:

- > 3250 (A) LENGTH: 2504 base pairs  
3251 (B) TYPE: nucleic acid  
3252 (C) STRANDEDNESS: double  
3253 (D) TOPOLOGY: linear  
3254

(ii) MOLECULE TYPE: cDNA

(ix) FEATURE:

- 3259 (A) NAME/KEY: CDS  
3260 (B) LOCATION: 355..2493  
3261  
3262

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:63:



RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/121,713DATE: 12/17/93  
TIME: 19:30:16

INPUT SET: S7086.raw

3265 GGCCGGTCGA CCACGAGCGA AGTTTAGTAT CAAGTTGAGA GTTTGTTTGG AGCGTAGTTT  
3266 60  
3267  
3268 ACGGAGCGTA CATTTAAATT TCGGGACAAA TCGTGTTTTG GTGCTTCTCT GTGGATTGTT  
3269 120  
3270  
3271 GTGTTCTTGA AGATGCTTCC CTTGGTTTTTC GGATAAGCTT TCCTGTGGAT TGTGTGTTC  
3272 180  
3273  
3274 TTGAAGATGC TTCCCTTGGT TTTCGGATAA GCTTTCAGC GTGGTTTCAG CCTCGGCTTG  
3275 240  
3276  
3277 TTTGGACCCC GACATAATCT TCGAACTACA ATGAAGAGGA AATTTTGAAA CGCGTTTCAG  
3278 300  
3279  
3280 ACGCGTACAA TCGACAAAAT GTTTGGTTTC CAATTGATCT TGCAATGTAG CTAC ATG  
3281 357  
3282 Met  
3283 1  
3284  
3285 GTG GTG AAG ATC TTG GTT TGG TCG ATA TGT CTG ATA GCG CTG TGT CAT  
3286 405  
3287 Val Val Lys Ile Leu Val Trp Ser Ile Cys Leu Ile Ala Leu Cys His  
3288 5 10 15  
3289  
3290 GCT TGG ATG CCG GAT AGT TCT TCC AAA TTA ATA AAC CAT TTT AAA TCA  
3291 453  
3292 Ala Trp Met Pro Asp Ser Ser Ser Lys Leu Ile Asn His Phe Lys Ser  
3293 20 25 30  
3294  
3295 GTT GAA AGT AAA AGC TTT ACC GGG AAC GCC ACG TTC CCT GAT CAC TTT  
3296 501  
3297 Val Glu Ser Lys Ser Phe Thr Gly Asn Ala Thr Phe Pro Asp His Phe  
3298 35 40 45  
3299  
3300 ATT GTC TTG AAT CAA GAC GAA ACT TCG ATA TTA GTA GGC GGT AGA AAT  
3301 549  
3302 Ile Val Leu Asn Gln Asp Glu Thr Ser Ile Leu Val Gly Gly Arg Asn  
3303 50 55 60 65  
3304  
3305 AGG GTT TAC AAT TTA AGT ATA TTC GAC CTC AGT GAG CGT AAA GGG GGG  
3306 597  
3307 Arg Val Tyr Asn Leu Ser Ile Phe Asp Leu Ser Glu Arg Lys Gly Gly  
3308 70 75 80  
3309  
3310 CGA ATC GAC TGG CCA TCG TCC GAT GCA CAT GGC CAG TTG TGT ATA TTG  
3311 645  
3312 Arg Ile Asp Trp Pro Ser Ser Asp Ala His Gly Gln Leu Cys Ile Leu  
3313 85 90 95  
3314  
3315 AAA GGG AAA ACG GAC GAC GAC TGC CAA AAT TAC ATT AGA ATA CTG TAC

# RAW SEQUENCE LISTING PATENT APPLICATION US/08/121,713

 DATE: 12/17/93  
 TIME: 19:30:23

INPUT SET: S7086.raw

```

3316 693
3317 Lys Gly Lys Thr Asp Asp Asp Cys Gln Asn Tyr Ile Arg Ile Leu Tyr
3318      100      105      110
3319
3320 TCT TCA GAA CCG GGG AAA TTA GTT ATT TGC GGG ACC AAT TCG TAC AAA
3321 741
3322 Ser Ser Glu Pro Gly Lys Leu Val Ile Cys Gly Thr Asn Ser Tyr Lys
3323      115      120      125
3324
3325 CCC CTC TGT CGG ACG TAC GCA TTT AAG GAG GGA AAG TAC CTG GTT GAG
3326 789
3327 Pro Leu Cys Arg Thr Tyr Ala Phe Lys Glu Gly Lys Tyr Leu Val Glu
3328 130      135      140      145
3329
3330 AAA GAA GTA GAA GGG ATA GGC TTG TGT CCA TAC AAT CCG GAA CAC AAC
3331 837
3332 Lys Glu Val Glu Gly Ile Gly Leu Cys Pro Tyr Asn Pro Glu His Asn
3333      150      155      160
3334
3335 AGC ACA TCT GTC TCC TAC AAT GGC CAA TTA TTT TCA GCG ACG GTC GCC
3336 885
3337 Ser Thr Ser Val Ser Tyr Asn Gly Gln Leu Phe Ser Ala Thr Val Ala
3338      165      170      175
3339
3340 GAC TTT TCC GGG GGC GAC CCT CTC ATA TAC AGG GAG CCC CAG CGC ACC
3341 933
3342 Asp Phe Ser Gly Gly Asp Pro Leu Ile Tyr Arg Glu Pro Gln Arg Thr
3343      180      185      190
3344
3345 GAA CTC TCA GAT CTC AAA CAA CTG AAC GCA CCG AAT TTC GTA AAC TCG
3346 981
3347 Glu Leu Ser Asp Leu Lys Gln Leu Asn Ala Pro Asn Phe Val Asn Ser
3348      195      200      205
3349
3350 GTG GCC TAT GGC GAC TAC ATA TTC TTC TTC TAC CGT GAA ACC GCC GTC
3351 1029
3352 Val Ala Tyr Gly Asp Tyr Ile Phe Phe Phe Tyr Arg Glu Thr Ala Val
3353 210      215      220      225
3354
3355 GAG TAC ATG AAC TGC GGA AAA GTC ATC TAC TCG CGG GTC GCC AGG GTG
3356 1077
3357 Glu Tyr Met Asn Cys Gly Lys Val Ile Tyr Ser Arg Val Ala Arg Val
3358      230      235      240
3359
3360 TGC AAG GAC GAC AAA GGG GGC CCT CAC CAG TCA CGC GAC CGC TGG ACG
3361 1125
3362 Cys Lys Asp Asp Lys Gly Gly Pro His Gln Ser Arg Asp Arg Trp Thr
3363      245      250      255
3364
3365 TCG TTC CTC AAA GCA CGT CTC AAT TGT TCA ATT CCC GGC GAG TAC CCC
3366 1173

```

# RAW SEQUENCE LISTING PATENT APPLICATION US/08/121,713

DATE: 12/17/93  
TIME: 19:30:30

INPUT SET: S7086.raw

```

3367 Ser Phe Leu Lys Ala Arg Leu Asn Cys Ser Ile Pro Gly Glu Tyr Pro
3368      260      265      270
3369
3370 TTT TAC TTT GAT GAA ATC CAA TCA ACA AGT GAT ATA GTC GAG GGT CGG
3371 1221
3372 Phe Tyr Phe Asp Glu Ile Gln Ser Thr Ser Asp Ile Val Glu Gly Arg
3373      275      280      285
3374
3375 TAC AAT TCC GAC GAC AGC AAA AAG ATC ATT TAT GGA ATC CTC ACA ACT
3376 1269
3377 Tyr Asn Ser Asp Asp Ser Lys Lys Ile Ile Tyr Gly Ile Leu Thr Thr
3378 290      295      300      305
3379
3380 CCA GTT AAT GCC ATC GGC GGC TCG GCC ATT TGC GCG TAT CAA ATG GCC
3381 1317
3382 Pro Val Asn Ala Ile Gly Gly Ser Ala Ile Cys Ala Tyr Gln Met Ala
3383      310      315      320
3384
3385 GAC ATC TTG CGC GTG TTT GAA GGG AGC TTC AAG CAC CAA GAG ACG ATC
3386 1365
3387 Asp Ile Leu Arg Val Phe Glu Gly Ser Phe Lys His Gln Glu Thr Ile
3388      325      330      335
3389
3390 AAC TCG AAC TGG CTC CCC GTG CCC CAG AAC CTA GTC CCT GAA CCC AGG
3391 1413
3392 Asn Ser Asn Trp Leu Pro Val Pro Gln Asn Leu Val Pro Glu Pro Arg
3393      340      345      350
3394
3395 CCC GGG CAG TGC GTA CGC GAC AGC AGG ATC CTG CCC GAC AAG AAC GTC
3396 1461
3397 Pro Gly Gln Cys Val Arg Asp Ser Arg Ile Leu Pro Asp Lys Asn Val
3398      355      360      365
3399
3400 AAC TTT ATT AAG ACC CAC TCT TTG ATG GAG GAC GTT CCG GCT CTT TTC
3401 1509
3402 Asn Phe Ile Lys Thr His Ser Leu Met Glu Asp Val Pro Ala Leu Phe
3403 370      375      380      385
3404
3405 GGA AAA CCA GTT CTG GTC CGA GTG AGT CTG CAG TAT CGG TTT ACA GCC
3406 1557
3407 Gly Lys Pro Val Leu Val Arg Val Ser Leu Gln Tyr Arg Phe Thr Ala
3408      390      395      400
3409
3410 ATA ACA GTG GAT CCA CAA GTG AAA ACA ATC AAT AAT CAG TAT CTC GAT
3411 1605
3412 Ile Thr Val Asp Pro Gln Val Lys Thr Ile Asn Asn Gln Tyr Leu Asp
3413      405      410      415
3414
3415 GTT TTG TAT ATC GGA ACA GAT GAT GGG AAG GTA CTA AAA GCT GTT AAT
3416 1653
3417 Val Leu Tyr Ile Gly Thr Asp Asp Gly Lys Val Leu Lys Ala Val Asn

```

# RAW SEQUENCE LISTING PATENT APPLICATION US/08/121,713

DATE: 12/17/93  
TIME: 19:30:37

INPUT SET: S7086.raw

```

3418          420          425          430
3419
3420 ATA CCA AAG CGA CAC GCT AAA GCG TTG TTA TAT CGA AAA TAC CGT ACA
3421 1701
3422 Ile Pro Lys Arg His Ala Lys Ala Leu Leu Tyr Arg Lys Tyr Arg Thr
3423    435          440          445
3424
3425 TCC GTA CAT CCG CAC GGA GCT CCC GTA AAA CAG CTG AAG ATC GCT CCC
3426 1749
3427 Ser Val His Pro His Gly Ala Pro Val Lys Gln Leu Lys Ile Ala Pro
3428 450          455          460          465
3429
3430 GGT TAT GGC AAA GTT GTG GTG GTC GGG AAA GAC GAA ATC AGA CTT GCT
3431 1797
3432 Gly Tyr Gly Lys Val Val Val Val Gly Lys Asp Glu Ile Arg Leu Ala
3433    470          475          480
3434
3435 AAT CTC AAC CAT TGT GCA AGC AAA ACG CGG TGC AAG GAC TGT GTG GAA
3436 1845
3437 Asn Leu Asn His Cys Ala Ser Lys Thr Arg Cys Lys Asp Cys Val Glu
3438    485          490          495
3439
3440 CTG CAA GAC CCA CAT TGC GCC TGG GAC GCC AAA CAA AAC CTG TGT GTC
3441 1893
3442 Leu Gln Asp Pro His Cys Ala Trp Asp Ala Lys Gln Asn Leu Cys Val
3443    500          505          510
3444
3445 AGC ATT GAC ACC GTC ACT TCG TAT CGC TTC CTG ATC CAG GAC GTA GTT
3446 1941
3447 Ser Ile Asp Thr Val Thr Ser Tyr Arg Phe Leu Ile Gln Asp Val Val
3448    515          520          525
3449
3450 CGC GGC GAC GAC AAC AAA TGT TGG TCG CCG CAA ACA GAC AAA AAG ACT
3451 1989
3452 Arg Gly Asp Asp Asn Lys Cys Trp Ser Pro Gln Thr Asp Lys Lys Thr
3453 530          535          540          545
3454
3455 GTG ATT AAG AAT AAG CCC AGC GAG GTT GAG AAC GAG ATT ACG AAC TCC
3456 2037
3457 Val Ile Lys Asn Lys Pro Ser Glu Val Glu Asn Glu Ile Thr Asn Ser
3458    550          555          560
3459
3460 ATT GAC GAA AAG GAT CTC GAT TCA AGC GAT CCG CTC ATC AAA ACT GGT
3461 2085
3462 Ile Asp Glu Lys Asp Leu Asp Ser Ser Asp Pro Leu Ile Lys Thr Gly
3463    565          570          575
3464
3465 CTC GAT GAC GAT TCC GAT TGT GAT CCA GTC AGC GAG AAC AGC ATA GGC
3466 2133
3467 Leu Asp Asp Asp Ser Asp Cys Asp Pro Val Ser Glu Asn Ser Ile Gly
3468    580          585          590

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RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/121,713DATE: 12/17/93  
TIME: 19:30:44

INPUT SET: S7086.raw

3469  
3470 GGA TGC GCC GTC CGC CAG CAA CTT GTT ATA TAC ACA GCT GGG ACT CTA  
3471 2181  
3472 Gly Cys Ala Val Arg Gln Gln Leu Val Ile Tyr Thr Ala Gly Thr Leu  
3473 595 600 605  
3474  
3475 CAC ATT GTC GTG GTC GTC GTC AGC ATC GTG GGT TTA TTT TCT TGG CTT  
3476 2229  
3477 His Ile Val Val Val Val Val Ser Ile Val Gly Leu Phe Ser Trp Leu  
3478 610 615 620 625  
3479  
3480 TAT AGC GGG TTA TCT GTT TTC GCA AAA TTT CAC TCG GAT TCG CAA TAT  
3481 2277  
3482 Tyr Ser Gly Leu Ser Val Phe Ala Lys Phe His Ser Asp Ser Gln Tyr  
3483 630 635 640  
3484  
3485 CCT GAG GCG CCG TTT ATA GAG CAG CAC AAT CAT TTG GAA AGA TTA AGC  
3486 2325  
3487 Pro Glu Ala Pro Phe Ile Glu Gln His Asn His Leu Glu Arg Leu Ser  
3488 645 650 655  
3489  
3490 GCC AAC CAG ACG GGG TAT TTG ACT CCG AGG GCC AAT AAA GCG GTC AAT  
3491 2373  
3492 Ala Asn Gln Thr Gly Tyr Leu Thr Pro Arg Ala Asn Lys Ala Val Asn  
3493 660 665 670  
3494  
3495 TTG GTG GTG AAG GTG TCT AGT AGC ACG CCG CGG CCG AAA AAG GAC AAT  
3496 2421  
3497 Leu Val Val Lys Val Ser Ser Ser Thr Pro Arg Pro Lys Lys Asp Asn  
3498 675 680 685  
3499  
3500 CTC GAT GTC AGC AAA GAC TTG AAC ATT GCG AGT GAC GGG ACT TTG CAA  
3501 2469  
3502 Leu Asp Val Ser Lys Asp Leu Asn Ile Ala Ser Asp Gly Thr Leu Gln  
3503 690 695 700 705  
3504  
3505 AAA ATC AAG AAG ACT TAC ATT TAGTGCGACT TTTT  
3506 2504  
3507 Lys Ile Lys Lys Thr Tyr Ile  
3508 710  
3509  
3510

(2) INFORMATION FOR SEQ ID NO:64:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 712 amino acids

(B) TYPE: amino acid

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

# RAW SEQUENCE LISTING PATENT APPLICATION US/08/121,713

DATE: 12/17/93  
TIME: 19:30:51

INPUT SET: S7086.raw

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3520      (xi) SEQUENCE DESCRIPTION: SEQ ID NO:64:
3521
3522  Met Val Val Lys Ile Leu Val Trp Ser Ile Cys Leu Ile Ala Leu Cys
3523      1              5              10              15
3524
3525  His Ala Trp Met Pro Asp Ser Ser Ser Lys Leu Ile Asn His Phe Lys
3526              20              25              30
3527
3528  Ser Val Glu Ser Lys Ser Phe Thr Gly Asn Ala Thr Phe Pro Asp His
3529              35              40              45
3530
3531  Phe Ile Val Leu Asn Gln Asp Glu Thr Ser Ile Leu Val Gly Gly Arg
3532      50              55              60
3533
3534  Asn Arg Val Tyr Asn Leu Ser Ile Phe Asp Leu Ser Glu Arg Lys Gly
3535      65              70              75              80
3536
3537  Gly Arg Ile Asp Trp Pro Ser Ser Asp Ala His Gly Gln Leu Cys Ile
3538              85              90              95
3539
3540  Leu Lys Gly Lys Thr Asp Asp Asp Cys Gln Asn Tyr Ile Arg Ile Leu
3541              100              105              110
3542
3543  Tyr Ser Ser Glu Pro Gly Lys Leu Val Ile Cys Gly Thr Asn Ser Tyr
3544              115              120              125
3545
3546  Lys Pro Leu Cys Arg Thr Tyr Ala Phe Lys Glu Gly Lys Tyr Leu Val
3547              130              135              140
3548
3549  Glu Lys Glu Val Glu Gly Ile Gly Leu Cys Pro Tyr Asn Pro Glu His
3550      145              150              155              160
3551
3552  Asn Ser Thr Ser Val Ser Tyr Asn Gly Gln Leu Phe Ser Ala Thr Val
3553              165              170              175
3554
3555  Ala Asp Phe Ser Gly Gly Asp Pro Leu Ile Tyr Arg Glu Pro Gln Arg
3556              180              185              190
3557
3558  Thr Glu Leu Ser Asp Leu Lys Gln Leu Asn Ala Pro Asn Phe Val Asn
3559              195              200              205
3560
3561  Ser Val Ala Tyr Gly Asp Tyr Ile Phe Phe Phe Tyr Arg Glu Thr Ala
3562      210              215              220
3563
3564  Val Glu Tyr Met Asn Cys Gly Lys Val Ile Tyr Ser Arg Val Ala Arg
3565      225              230              235              240
3566
3567  Val Cys Lys Asp Asp Lys Gly Gly Pro His Gln Ser Arg Asp Arg Trp
3568              245              250              255
3569
3570  Thr Ser Phe Leu Lys Ala Arg Leu Asn Cys Ser Ile Pro Gly Glu Tyr

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**RAW SEQUENCE LISTING**  
**PATENT APPLICATION US/08/121,713**

 DATE: 12/17/93  
 TIME: 19:30:57

**INPUT SET: S7086.raw**

3571		260		265		270	
3572							
3573	Pro	Phe	Tyr	Phe	Asp	Glu	Ile
3574			275				280
3575							285
3576	Arg	Tyr	Asn	Ser	Asp	Asp	Ser
3577		290				295	
3578							300
3579	Thr	Pro	Val	Asn	Ala	Ile	Gly
3580	305				310		315
3581							320
3582	Ala	Asp	Ile	Leu	Arg	Val	Phe
3583				325			330
3584							335
3585	Ile	Asn	Ser	Asn	Trp	Leu	Pro
3586			340				345
3587							350
3588	Arg	Pro	Gly	Gln	Cys	Val	Arg
3589			355				360
3590							365
3591	Val	Asn	Phe	Ile	Lys	Thr	His
3592		370				375	
3593							380
3594	Phe	Gly	Lys	Pro	Val	Leu	Val
3595	385				390		395
3596							400
3597	Ala	Ile	Thr	Val	Asp	Pro	Gln
3598				405			410
3599							415
3600	Asp	Val	Leu	Tyr	Ile	Gly	Thr
3601			420			425	
3602							430
3603	Asn	Ile	Pro	Lys	Arg	His	Ala
3604		435					440
3605							445
3606	Thr	Ser	Val	His	Pro	His	Gly
3607		450				455	
3608							460
3609	Pro	Gly	Tyr	Gly	Lys	Val	Val
3610	465				470		475
3611							480
3612	Ala	Asn	Leu	Asn	His	Cys	Ala
3613				485			490
3614							495
3615	Glu	Leu	Gln	Asp	Pro	His	Cys
3616			500				505
3617							510
3618	Val	Ser	Ile	Asp	Thr	Val	Thr
3619			515			520	
3620							525
3621	Val	Arg	Gly	Asp	Asp	Asn	Lys
							Cys
							Trp
							Ser
							Pro
							Gln
							Thr
							Asp
							Lys
							Lys

# RAW SEQUENCE LISTING PATENT APPLICATION US/08/121,713

DATE: 12/17/93  
TIME: 19:31:04

INPUT SET: S7086.raw

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3622      530      535      540
3623
3624 Thr Val Ile Lys Asn Lys Pro Ser Glu Val Glu Asn Glu Ile Thr Asn
3625 545      550      555      560
3626
3627 Ser Ile Asp Glu Lys Asp Leu Asp Ser Ser Asp Pro Leu Ile Lys Thr
3628      565      570      575
3629
3630 Gly Leu Asp Asp Asp Ser Asp Cys Asp Pro Val Ser Glu Asn Ser Ile
3631      580      585      590
3632
3633 Gly Gly Cys Ala Val Arg Gln Gln Leu Val Ile Tyr Thr Ala Gly Thr
3634      595      600      605
3635
3636 Leu His Ile Val Val Val Val Val Ser Ile Val Gly Leu Phe Ser Trp
3637      610      615      620
3638
3639 Leu Tyr Ser Gly Leu Ser Val Phe Ala Lys Phe His Ser Asp Ser Gln
3640      625      630      635      640
3641
3642 Tyr Pro Glu Ala Pro Phe Ile Glu Gln His Asn His Leu Glu Arg Leu
3643      645      650      655
3644
3645 Ser Ala Asn Gln Thr Gly Tyr Leu Thr Pro Arg Ala Asn Lys Ala Val
3646      660      665      670
3647
3648 Asn Leu Val Val Lys Val Ser Ser Ser Thr Pro Arg Pro Lys Lys Asp
3649      675      680      685
3650
3651 Asn Leu Asp Val Ser Lys Asp Leu Asn Ile Ala Ser Asp Gly Thr Leu
3652      690      695      700
3653
3654 Gln Lys Ile Lys Lys Thr Tyr Ile
3655      705      710
3656
3657

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(2) INFORMATION FOR SEQ ID NO:65:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 369 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: cDNA

(ix) FEATURE:

- (A) NAME/KEY: CDS
- (B) LOCATION: 1..369

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3672



RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/121,713DATE: 12/17/93  
TIME: 19:31:11

INPUT SET: S7086.raw

3673  
3674 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:65:  
3675  
3676 ATG ATT TAT TTA TAC ACG GCG GAT AAC GTA ATT CCA AAA GAT GGT TTA  
3677 48  
3678 Met Ile Tyr Leu Tyr Thr Ala Asp Asn Val Ile Pro Lys Asp Gly Leu  
3679 1 5 10 15  
3680  
3681 CAA GGA GCA TTT GTC GAT AAA GAC GGT ACT TAT GAC AAA GTT TAC ATT  
3682 96  
3683 Gln Gly Ala Phe Val Asp Lys Asp Gly Thr Tyr Asp Lys Val Tyr Ile  
3684 20 25 30  
3685  
3686 CTT TTC ACT GTT ACT ATC GGC TCA AAG AGA ATT GTT AAA ATT CCG TAT  
3687 144  
3688 Leu Phe Thr Val Thr Ile Gly Ser Lys Arg Ile Val Lys Ile Pro Tyr  
3689 35 40 45  
3690  
3691 ATA GCA CAA ATG TGC TTA AAC GAC GAA TGT GGT CCA TCA TCA TTG TCT  
3692 192  
3693 Ile Ala Gln Met Cys Leu Asn Asp Glu Cys Gly Pro Ser Ser Leu Ser  
3694 50 55 60  
3695  
3696 AGT CAT AGA TGG TCG ACG TTG CTC AAA GTC GAA TTA GAA TGT GAC ATC  
3697 240  
3698 Ser His Arg Trp Ser Thr Leu Leu Lys Val Glu Leu Glu Cys Asp Ile  
3699 65 70 75 80  
3700  
3701 GAC GGA AGA AGT TAT AGT CAA ATT AAT CAT TCT AAA ACT ATA AAA CAG  
3702 288  
3703 Asp Gly Arg Ser Tyr Ser Gln Ile Asn His Ser Lys Thr Ile Lys Gln  
3704 85 90 95  
3705  
3706 ATA ATG ATA CGA TAC TAT ATG TAT TCT TTG ATA GTC CTT TTC CAA GTC  
3707 336  
3708 Ile Met Ile Arg Tyr Tyr Met Tyr Ser Leu Ile Val Leu Phe Gln Val  
3709 100 105 110  
3710  
3711 CGC ATT ATG TAC CTA TTC TAT GAA TAC CAT TA  
3712 369  
3713 Arg Ile Met Tyr Leu Phe Tyr Glu Tyr His  
3714 115 120  
3715  
3716  
3717 (2) INFORMATION FOR SEQ ID NO:66:  
3718  
3719 (i) SEQUENCE CHARACTERISTICS:  
3720 (A) LENGTH: 122 amino acids  
3721 (B) TYPE: amino acid  
3722 (D) TOPOLOGY: linear  
3723

RAW SEQUENCE LISTING  
PATENT APPLICATION US/08/121,713DATE: 12/17/93  
TIME: 19:31:18

INPUT SET: S7086.raw

3724 (ii) MOLECULE TYPE: protein  
3725  
3726 (xi) SEQUENCE DESCRIPTION: SEQ ID NO:66:  
3727  
3728 Met Ile Tyr Leu Tyr Thr Ala Asp Asn Val Ile Pro Lys Asp Gly Leu  
3729 1 5 10 15  
3730  
3731 Gln Gly Ala Phe Val Asp Lys Asp Gly Thr Tyr Asp Lys Val Tyr Ile  
3732 20 25 30  
3733  
3734 Leu Phe Thr Val Thr Ile Gly Ser Lys Arg Ile Val Lys Ile Pro Tyr  
3735 35 40 45  
3736  
3737 Ile Ala Gln Met Cys Leu Asn Asp Glu Cys Gly Pro Ser Ser Leu Ser  
3738 50 55 60  
3739  
3740 Ser His Arg Trp Ser Thr Leu Leu Lys Val Glu Leu Glu Cys Asp Ile  
3741 65 70 75 80  
3742  
3743 Asp Gly Arg Ser Tyr Ser Gln Ile Asn His Ser Lys Thr Ile Lys Gln  
3744 85 90 95  
3745  
3746 Ile Met Ile Arg Tyr Tyr Met Tyr Ser Leu Ile Val Leu Phe Gln Val  
3747 100 105 110  
3748  
3749 Arg Ile Met Tyr Leu Phe Tyr Glu Tyr His  
3750 115 120  
3751  
3752

**SEQUENCE VERIFICATION REPORT**  
**PATENT APPLICATION US/08/121,713**DATE: 12/17/93  
TIME: 19:31:22**INPUT SET: S7086.raw**

Line	Error	Original Text
13	Number of Sequences (50) Doesn't Equal Actual Count (66)	(iii) NUMBER OF SEQUENCES: 50
1262	Entered (2601) and Calc. Seq. Length (0) differ	(A) LENGTH: 2601 base pairs
1700	Entered (1332) and Calc. Seq. Length (0) differ	(A) LENGTH: 1332 base pairs
1955	Entered (2854) and Calc. Seq. Length (0) differ	(A) LENGTH: 2854 base pairs
2388	Entered (3560) and Calc. Seq. Length (0) differ	(A) LENGTH: 3560 base pairs
2828	Entered (2670) and Calc. Seq. Length (0) differ	(A) LENGTH: 2670 base pairs
3250	Entered (2504) and Calc. Seq. Length (0) differ	(A) LENGTH: 2504 base pairs
3661	Entered (369) and Calc. Seq. Length (0) differ	(A) LENGTH: 369 base pairs

PAGE: 1

**SEQUENCE MISSING ITEM REPORT**  
**PATENT APPLICATION US/08/121,713**

DATE: 12/17/93  
TIME: 19:31:24

*INPUT SET: S7086.raw*

APPLICATION NUMBER  
FILING DATE  
PRIOR APPLICATION DATA

PAGE: 1

**SEQUENCE CORRECTION REPORT**  
**PATENT APPLICATION US/08/121,713**

DATE: 12/17/93  
TIME: 19:31:24

*INPUT SET: S7086.raw*

Line	Original Text	Corrected Text
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